

THE GREAT & SMALL GAME
OF AFRICA

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GREAT & SMALL GAME OF AFRICA

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Roland Ward

GREAT AND SMALL GAME OF AFRICA

AN ACCOUNT OF THE DISTRIBUTION, HABITS, AND NATURAL
HISTORY OF THE SPORTING MAMMALS, WITH
PERSONAL HUNTING EXPERIENCES

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PREFACE

HITHERTO those interested in the sporting animals of Africa, if they wished to gain information upon particular species, have been compelled to search through many volumes before they could attain their object. This book is intended to obviate, as far as possible, that defect. Within the following pages will be found details, many of them entirely new, concerning all the more important of the game mammals occurring throughout the length and breadth of Africa.

It is not claimed for this work that it is complete and final. Africa is not yet fully explored, and although during the last half-century that great continent has yielded up innumerable secrets of zoology, the discoveries of recent years suggest that forms of animal life, at present unknown to science, may still be awaiting the naturalist and the hunter in the remoter and still unknown regions of the interior. It may, however, be claimed that, concerning known species, as much information as it is possible to comprise within the limits of one stout volume is to be found within the following pages. This information has been conveyed in a reasonably popular form, and the non-scientific reader should have little difficulty in laying his finger quickly upon the facts of which he may be in search.

It should add to the interest of readers to know that the great bulk of the book has been contributed by well-known African sportsmen, who have had intimate personal experience of the animals of which they treat. These experiences have often extended over a space of many years—Mr. Selous, for instance, writes from the stirring memories of a quarter of a

century of life in the African wilderness—and the volume is to be looked upon not only as a work of natural history, but as in some respects the faithful chronicle of the present generation of sportsmen in the great hunting-grounds of the various regions of Africa. The average sportsman and traveller in Africa can only hope to exploit a comparatively small area of that vast and difficult continent; but by the aid of this book both he and the home-dwelling reader may, conducted by experienced guides, ramble from one hunting-veld to another, and survey at will the wonderful animal life of the most splendid sporting country the world has ever seen.

Mr. Rowland Ward has been fortunate in securing contributors from every part of Africa, and the value of this record is thereby much enhanced. From West Africa few details of sport have hitherto reached this country; but, thanks to the contributions of Major A. J. Arnold and others, this gap has been more than reasonably well filled.

Many of the articles have been written in the depths of Africa itself, in places and under conditions where a high literary or technical excellence can scarcely be expected. As a whole, however, the work has suffered but little from these drawbacks; the average modern big-game sportsman having long since proved himself, even under circumstances of much difficulty, a competent literary craftsman.

The publisher is greatly indebted to Lord Delamere for a series of many interesting photographs taken during his recent two years' expedition into the unexplored regions of East and North-East Africa. These photographs are in many respects unique, and may be looked upon as among the first successful attempts to depict with the camera African great game in their native haunts. Thanks are also due to the Duchess of Bedford and Mr. Poulett-Weatherley for several photographs in the text. Mr. C. D. Rudd has, in addition, been good enough to supply photographs of various animals taken in his park at Fernwood, Newlands, near Cape Town.

The scientific side of the work is considerably enhanced by the brief

but adequate definitions of the various genera contributed by Mr. Lydekker. To the same gentleman we are also indebted for the complete list of the fauna which follows the preface.

Mr. J. Smit's series of hand-coloured drawings (in all, fifteen plates) of the principal game animals will doubtless be recognised as a faithful gallery of portraits.

It has been a somewhat difficult matter to know where to draw the line in a description of "Great and Small Game of Africa." The antelopes and all the more important sporting mammals are fully represented. After much consideration I have ended the lists among the Canidæ with the African hunting-dog, and among the smaller Carnivora with the civet.

H. A. B.

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² The Zambesi form has been separated as *Tragelaphus selousi*.

³ The giraffe from Lake Iyasa, German East Africa, has been distinguished as *Giraffa tippelskirchii*, and the Kilima-Njaro form as *Giraffa schillingii*.

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1. Common Eland Head (male). 2. West African Eland Head (male). 3. Common
Eland Head (female). 4. Sable Antelope Head (male). 5. Sable Antelope Horns
(female). 6. Roan Antelope Head (male). 7. Roan Antelope Horns (female).

PLATE 13 440

1. Greater Kudu Head. 2. Lesser Kudu Head. 3. Bongo Head. 4. Nyala Head.
5. West African Situtunga Head. 6. Situtunga Head (also Hoofs). 7. Bush-
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PLATE 14 488

1. Northern Giraffe Head. 2. Northern Giraffe Head (three-horned variety).
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PLATE 15 568

1. Leopard Head. 2. Jungle Cat Head. 3. Caracal Head. 4. Cheeta Head. 5.
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GREAT AND SMALL GAME OF AFRICA

THE ELEPHANT (*Elephas africanus*)

ORDER UNGULATA. SUB-ORDER PROBOSCIDEA

Family ELEPHANTIDÆ. Genus ELEPHAS

THE African and Indian elephants are the sole existing representatives not only of the genus and family to which they belong, but likewise of the sub-order Proboscidea, which forms a peculiar section of the Ungulata, or Hoofed Mammals. In addition to their huge bodily size and clumsy build, elephants are characterised by the trunk, or proboscis in which the muzzle is produced, the presence of tusks in the upper jaw, and the peculiar nature of the cheek-teeth. These latter are six in number in each side of both the upper and lower jaw, but only one, or portions of two are in use at any one time, the series increasing in size from front to back, and the larger hind ones coming up into use as the smaller front ones are worn away, and taking their place. Each tooth consists of a number of vertical plates united together; the number of such plates being least in the first and greatest in the last tooth of the series. The massive cushion-like feet have the position of the toes indicated by broad flat nails, of which there may be either three or four in the hind-limb, and usually five in the fore-limb. The bones of the limbs are placed almost vertically above one another, as in the human leg, in consequence of which the upper portion of each limb is free from the body, instead of being partially enclosed in the same, as in the great majority of Hoofed Mammals. There are, of

course, many other striking peculiarities in the structure of elephants, but the above are sufficient to distinguish them from all other animals.

Externally the African species is characterised by its enormous ears, convex forehead, concave back (of which the shoulder forms the highest point), the presence of tusks in both sexes, the reduction of the nails on the hind-foot to three, and the existence of a finger-like process on both the front and hind margins of the tip of the trunk. More important than all, is the comparatively small number of plates entering into the composition of each grinding-tooth; the worn surface of each of these plates showing a lozenge-shaped ellipse of ivory surrounded by a band of the harder enamel.

IN SOUTHERN AFRICA

Oliphant OF CAPE DUTCH; *Indhlovu* OF ZULUS; *Incubu* OF MATABELE;
Thloo OF BECHUANAS

The steady advance of civilisation northwards from the Cape Colony during the last fifty years has banished the elephant from vast areas of country, where it was once very abundant, and with the exception of a limited number which are carefully preserved in the Zitzikama forests near Mossel Bay and in the Addo bush near Port Elizabeth, there are, I believe, no elephants existing to-day anywhere south of the Limpopo, except a couple of small herds which wander over the country in the neighbourhood of the Maputa River to the south of Delagoa Bay. In the whole of Khama's country there is now, to the best of my belief, only one resident herd of elephants, though during the rainy season a few herds wandering southwards from the country between the Upper Chobi and Okavango rivers may occasionally come within the borders of his northern hunting grounds in the Mababi district. The resident herd I have spoken of above inhabits the dense thorn jungles between Sode Gara and the chain of permanent

springs known as Umthlabahanyana, through which the old waggon road from Bamangwato to Pandamatenka used to pass. These elephants sometimes live together in one large herd and at others break up into several parties. - In 1884 the entire troop must have numbered at least a hundred, and amongst them there were four immense old bulls, none of which, I believe, has yet been shot. Between the Chobi and the Zambesi there used to be great numbers of elephants not many years ago, and a good many probably still survive in that district. In South-East Africa I saw the tracks of several large herds of elephants in 1891, in the country between the Buzi and Pungwe rivers, and again in 1892 I came across some of these animals between the Pungwe River and Lake Sungwe; I think therefore there must still be a good number of elephants wandering about in the coast country between the Buzi River and the Lower Zambesi, as, when I was at Sena in 1889, I was told by the Portuguese that there were elephants in the forests to the south of that place. In the northern parts of Rhodesia, amongst the hills and in the forests which lie between the high plateaux and the Zambesi, there are still a good number of elephants, especially in the dense wait-a-bit thorn jungles which lie to the west of the Gwai River; and in these vast areas of country, which can never be inhabited by Europeans, I believe that elephants will continue to roam for centuries yet to come, even without any special protection, as the natives of Matabeleland and Mashunaland, if not completely disarmed, have very little ammunition. In a country where all the big tuskers have been shot, and the survivors rendered very wild and cunning, while at the same time they have an enormous extent of country to roam over, it will not pay a European to hunt them as a business.

The average vertical standing height at the shoulder, fairly taken with a tape-line, of the male elephant when full grown is, in Southern Africa, from 10 feet to 10 feet 6 inches. This is somewhat less than the average height of old bull elephants appears to be in the neighbourhood of Lake

Rudolph, in East Equatorial Africa, where that very competent and careful observer, Mr. Arthur H. Neumann, ascertained by actual measurements with the tape-line that old bull elephants usually stand about 10 feet 8 or 9 inches at the shoulder. No doubt these dimensions are occasionally considerably exceeded, and a height of from 11 feet to 12 feet at the shoulder is sometimes attained, but the *average* height of the full-grown males of this species is certainly less than 11 feet. The average size of the tusks was, I believe, always less in Southern than in Equatorial Africa. No large tusks have ever yet been obtained in the Addo bush or the Zitzikama forest, the most southerly localities of the elephant on the African continent; and from all I have been able to learn, the bulls in those districts seldom grow tusks exceeding 45 lbs. in weight each. When I first went up to Matabeleland in 1872, although the herds of elephants inhabiting those parts of the country where there was no tse-tse fly had been much harried by English and Boer hunters, the greater part of the fly-infested country, where horses could not be used, had scarcely been touched, and there were many parts of the vast territory lying between the high plateaux of Matabeleland and Mashunaland and the Zambesi River where the elephants had never yet been molested by a European or even by a native hunter armed with a rifle. During the next three years, however, swarms of Lo Bengula's hunters, besides a small number of Europeans, waged a constant war on the unfortunate elephants, and killed most of the big tuskers in these hitherto untouched districts. In 1872, 1873, and 1874, not less than 60,000 lbs. weight of ivory was sold to traders by Lo Bengula, and if we add to this amount 40,000 lbs., which is a low estimate of the weight of ivory shot by Europeans and their native hunters in Matabeleland during the same time, we have a total of 100,000 lbs. of ivory obtained in that country in the three years preceding 1875. Most of this ivory I saw, and I heard of all the exceptionally large tusks which were either traded from Lo

Bengula or shot by Europeans. I also saw in 1874 many tons of ivory which had been traded from Sipopo, then the paramount Chief of the Barotsi, and think, therefore, that I am justified in expressing an opinion as to the average size that the tusks of elephants used to reach in the interior of South Africa, before the herds had been decimated and all the finest tuskers destroyed. The ivory brought from the country immediately to the north of the Central Zambesi averaged somewhat larger than that obtained in Matabeleland, where the tusks of big full-grown bulls weighed, as a rule, from 40 lbs. to 60 lbs. Tusks weighing over 60 lbs. were not uncommon, though not at all numerous ; but tusks over 70 lbs. in weight were certainly few and far between, whilst anything over 80 lbs. was very rare.

Many thousands of bull elephants have been killed in South Africa during the last sixty or seventy years, but out of all that number probably less than fifty carried tusks weighing upwards of 100 lbs. each. Some few, however, of very abnormal size have been recorded. One was brought to Bamangwato from the Lake N'gami district in 1873 by a Boer hunter named Bernhard Bauer, which weighed 174 lbs. This was a single tusk and was bought from the natives, and whether it originally belonged to a one-tusked elephant, or its fellow was broken or had been disposed of elsewhere, is not known. An elephant carrying enormous tusks, too, was wounded and lost late one evening in 1868 or 1869 by a Boer hunter named Potgeiter in the thick bush between the Vungo and Gwelo rivers within seventy miles of the present township of Bulawayo. This animal was found dead a few days later by a native hunter, and its tusks came into the possession of a trader at Bulawayo. They measured 9 feet in length and the pair weighed a little over 300 lbs. A very similar pair of tusks of about the same weight was obtained in barter from Umzila, the king of the Gaza Zulus, in 1874, by Mr. Reuben Benningfield of Durban, Natal. The largest tusked

elephant ever actually shot by a European in South Africa is, I believe, the one killed on the Zouga River in 1849 by the late Mr. Oswell, who records the aggregate weight of the tusks as being between 230 lbs. and 240 lbs., and their length rather less than 8 feet. The bull that carried this very heavy pair of tusks was, Mr. Oswell tells us, the smallest of all the old male elephants which he shot. In Equatorial Africa the average weight of elephant tusks is certainly considerably greater than it ever was in South Africa, and tusks weighing upwards of 100 lbs. each do not seem to be uncommon.

Whilst hunting in the neighbourhood of Lake Rudolph in 1894, Mr. Arthur H. Neumann shot several elephants with tusks weighing about a hundredweight apiece, the largest, when thoroughly dried out, scaling 116 lbs. As regards shooting elephants with tusks weighing upwards of 100 lbs., no white hunter in South Africa, either Boer or Englishman, has ever approached Mr. Neumann's record. Up to a few months ago, the largest tusk known was the one in the possession of Sir Edmund Loder, which weighs 184 lbs. and measures 9 feet 5 inches in length, with a circumference of $22\frac{1}{2}$ inches, but quite recently a tusk has been brought to Zanzibar which weighs 225 lbs. Both these tusks probably came from some part of Equatorial East Africa. Cow elephants in South Africa carry tusks, when full grown, weighing on the average from 10 lbs. to 14 lbs. They sometimes grow much larger, but cow-tusks of 20 lbs. weight were always exceptional, though I once saw one which weighed 39 lbs., its fellow being nearly as heavy. As a rule all African elephants carry tusks, but in every herd there used to be one or two tuskless cows, sometimes more. In all my experience, however, I have only seen one tuskless bull. Both cows and bulls occasionally have only one tusk, and when that is the case there is no rudimentary tusk on the other side, the bone being quite solid. I have more than once noticed the calf of a tuskless cow with tusks. I have never noticed in South Africa that the

tusks of either bull or cow elephants were of unequal size and weight, owing to the fact that one tusk had been exclusively used for digging, nor do I think that in the parts of the country with which I am acquainted the tusks were commonly used for this purpose. I have often seen acres of sandy ground dug into holes by a large herd of elephants in search of roots, but the digging was not done with their tusks. The *modus operandi* was this: the position of a root underground having been first located by the outstretched proboscis through the sense of smell, the elephant then dug down to it with his fore-foot, scraping out the sand, and throwing it backwards, just as a dog may be seen to do when trying to unearth a rat. When the coveted root was laid bare—it was usually one of the horizontal roots of a growing tree—the elephant would stoop down, and, getting his tusk underneath it, prise it up, and after breaking it in two, pull the tapering end out of the ground with his trunk, and after munching it for the sake of the sap and the bark, spit the wood out. Upon three several occasions I have found a piece of a tusk about a foot in length freshly broken off, jammed under a root, which it had not been strong enough to break in two. Two of these broken tusks were those of cows, but one was that of a big bull, the piece broken off weighing at least 10 lbs. When an elephant has broken the end off one of his tusks, he soon wears the rough edges off the broken surface, and becomes what is known in South Africa as a stump-tusked elephant. Old elephant cows often have both their tusks much worn down and their ends flattened on each side, forming a wedge-shaped point; and I used to think that this wearing away of their tusks had been done, not so much by actual work whilst obtaining food, as by rubbing them against trees, in the same way that buffaloes and antelopes wear away their horns when old. Elephants, however, which live in countries where the soil is soft and sandy, usually carry perfect tusks, very even both in weight and shape. On the other hand, elephants which frequent broken, hilly country, where the soil is hard and stony,

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scarcely ever have both their tusks perfect, whilst very often both of them are more or less broken. How they break their tusks in such localities I do not quite know, for I cannot call to mind having seen much evidence of digging by elephants in hard ground.

Elephants in South Africa feed upon leaves, bark, roots, palm-nuts and wild fruits of various kinds, but very rarely, I believe, eat any kind of grass.¹ There is one kind of tree, known to the natives of Matabeleland as the Machabel, which grows very plentifully in the Zambesi regions, of the bark and young leaves of which elephants are especially fond. These trees often grow to a height of 30 or 40 feet, with stems over a foot in diameter. Using their tusks like a blunt chisel, elephants will cut through the bark of such trees at a height of 4 or 5 feet from the ground, and then, after knocking a piece of bark loose, get hold of it with their trunks, and by pulling at it strip the tree of a piece of bark as broad as the piece they have got hold of, right up to the top of one of the highest branches, for the bark of this tree peels off very easily and does not break while being ripped from the tree. I have often followed a large herd of elephants for miles through the Machabel forests of Northern Mashunaland, without ever looking for their tracks on the ground, simply by keeping on the line of the trees that had been peeled of their bark. The outside bark of the Machabel tree is, however, not eaten by elephants, but only the thin inner bark, which is much used for the manufacture of rope and string by the natives, and has a very sweet taste. Small trees of 2 or 3 inches in diameter elephants break down with their trunks, but larger trees they butt down. I have seen them doing this. They push against the tree with the thick part of their trunks, and get it on the swing, giving way as it swings towards them, but following it up as it goes back again, and putting all their

¹ Dr. Livingstone mentions one such case, as the only instance that had ever come under his notice of an elephant eating grass in South Africa.

weight into the push they give at the end of the swing. During the dry season trees over a foot in diameter—usually fruit-bearing trees—are often broken clean off at a height of 2 or 3 feet from the ground. But in the rainy season, when the soil is soaked and the roots of some species of trees have but little hold in the ground, elephants will push over trees of such a size that one would not believe that the strength of any living animal could affect them. I once saw a young bull elephant push over an Umglosi tree, a species which bears a sweet-tasted fruit; and immediately it fell, all the young elephants of the herd rushed up and commenced to pick off the fruit with the finger and thumb-like extremity of their trunks and convey them to their mouths one by one as quickly as possible.

African elephants are highly gregarious and are, or were, often met with in immense herds of from one to four hundred individuals. These large herds were often composed almost exclusively of cows and calves with a certain number of young bulls amongst them, the old bulls seldom being met with herding among the cows. I have, however, met with bulls apparently full grown amongst a herd of cows, and I once followed on the tracks of eight or ten old bulls and came up with them standing in close proximity to an immense troop of cows and calves. As a rule, old bulls keep to themselves and are met with either singly or two or three up to a dozen together. Solitary bulls in Africa are not more vicious than others, and really big old bulls are usually less savage than cows and young bulls. African elephants seem fond of climbing to the top of hills often over very broken, rocky ground. They, however, do most of their climbing at night. They can only go uphill at a slow pace, but come down like an avalanche, when frightened or angry, and will negotiate very steep places by sitting down and sliding on their haunches. They are good swimmers, and five-and-twenty years ago it was a common thing for elephants to cross the Zambesi during the night between the Victoria Falls and the mouth of the Chobi. The natives have told me that they

swim with their heads and part of their tusks above water, but I have never seen them swimming myself.

When very young, African elephants have a good deal of long coarse hair on their heads round the orifices of the ears, which gradually disappears as they grow up. As with rhinoceros calves, young elephants will remain by the carcase of their dam if she should be shot, and will charge anything that approaches them with superb fearlessness, raising their ears and screaming lustily the while. I have seen one so small that, when it charged, I seized it by its little trunk with one hand, and catching hold of one of its forelegs with the other, was able to throw it on its back with ease. In countries where food is abundant, and where they feel themselves absolutely safe from molestation, elephants lead a lazy life and do very little travelling. They feed at nights and in the early mornings, and stand sleeping sometimes in the shade of trees, but often in jungle not high enough to completely cover them (when their backs and the top of their heads are therefore exposed to the full heat of the sun), until late in the afternoon. As they stand sleeping or dozing, they keep continually moving their great ears, twitching them slightly forwards from their necks at very frequent and regular intervals. This constant movement of the ears may be intended to keep flies off their necks, over the back of which they often blow a pinch of fine sand, picked up from the ground with the hand-like extremity of the proboscis, possibly with the same purpose. Where food is scarce and scattered, or where elephants are much hunted, they travel enormous distances, only resting during the very hottest hours of the day; and unless their tracks are crossed while still quite fresh, a hunter is not likely to come up with them. A few years ago, in the forests on the northern slope of Mashunaland, where there were still a good many elephants, and where in the winter months the sun was not intensely hot at any time of day, it appeared to me that these animals scarcely took any rest at all. At any rate, I have often

known them to travel all day long without resting, feeding as they went. In hot weather elephants drink every night, if possible, but my observations on the Chobi River led me to think that during the cold season they only drank on alternate nights. I have often seen places where elephants have rolled, or rubbed themselves on the side of ant-heaps, but I have never either seen one actually lying down to rest, or found the marks on the ground where one had been lying, and I should therefore say from my own experience, that, except to roll in mud and water, the African elephant never lies down at all during its whole life. Neither the period of gestation nor the age attained by the African elephant has ever been ascertained with any accuracy, but in these respects it is not likely to differ very much from its near relative of India, in which country the late well-known authority, Colonel Sanderson, ascertained that the period of gestation for a male elephant calf was twenty-two months and for a female calf eighteen months, whilst he puts the age likely to be attained by a wild elephant at from 120 to 150 years.

There is probably no animal in the whole world possessed of a keener sense of smell than the African elephant. The sense of hearing, too, is fairly well developed, though by no means remarkably acute; but its eyesight is very bad, as it cannot distinguish a human being from a tree stump, though he be standing in full view within fifty yards, so long as he stands absolutely still. Any movement will, however, be at once noticed. In one sense the African elephant is the most timid of animals, for it will do everything in its power to avoid meeting a human being, and it is not too much to say that the scent of the smallest baby, if conveyed to the delicate olfactory nerves of one of a herd of elephants, would put the whole of the troop to flight, and keep them on the move for many miles. However, when actually attacked, elephants are often very savage, and the more they are hunted the more vicious they become. Often, if pursued on horseback, one of a herd of elephants will charge as soon as it sees its mounted

tormentor approaching, before a shot has been fired. Sometimes one will come running out screaming loudly, with its trunk held high in the air, on hearing a shot fired, but, after coming a very short distance, will suddenly stop screaming, drop its trunk, and run back again to the herd. When an elephant is vicious and inclined to charge, he holds his tail straight up, and keeps cocking his ears, and looking from side to side for his enemy, at the same time trying to get his scent with his raised trunk. When standing wounded, too, if he thinks he sees his diminutive foe approaching he raises his head and trunk and spreads his great ears; and should a movement, or a whiff of tainted air turn his suspicions to certainty, will very likely charge forthwith, screaming like a railway engine. Thus the African elephant, when he commences his charge, often, perhaps usually, has his trunk raised aloft. Immediately, however, he settles to a regular chase, he drops his trunk, holding it in front of his chest, though not screwed up under his jaws after the manner of an Indian elephant when charging. When charging, an African elephant, especially a cow or young bull, comes on at a very great pace. Given a few yards' start, a very active man might keep in front of one for 60 or 70 yards, but I do not think I shall be far wrong if I say that an African elephant, when going at its utmost speed—that is when charging—is capable of covering 120 yards in ten seconds. No matter how fast an elephant runs, it never attempts any pace but a shuffling kind of trot. When alarmed, elephants do not run very far, but soon settle down to a quick walk, known to South African hunters as “de long stap”—the long step—which requires a man to run at a good jog-trot to keep up with. This pace they can keep up without flagging for many miles. When chased during very hot weather, either on horseback, or by good runners on foot, elephants soon show signs of being distressed. They very soon begin to put the ends of their trunks into their mouths, and after drawing up a bucketful of water from their stomachs, proceed to squirt it over their

shoulders ; and I have sometimes seen them, when their water-supply was exhausted, pick up sand and blow it over themselves. If the proportion of charges to the number of animals shot is any criterion, my own experience is that the African elephant is a more vicious animal when tormented than the African buffalo. Fortunately, however, a charging elephant can almost always be turned by a shot as he is coming on, no matter where the bullet strikes him. I used indeed to consider myself pretty safe as long as I had a loaded gun in my hand, and I have never yet failed to stop a charge. Except on one particular occasion, when a badly wounded bull elephant which was charging, and came on screaming loudly with every appearance of meaning business, ceased screaming and swerved off immediately he was struck in the chest by a bullet from a 450-bore rifle, I have always fired at charging elephants with very heavily loaded 4-bore guns, which must have given them a considerable shock, no matter where they were hit. The Swedish naturalist, Professor Wahlberg, who was unfortunately killed by an elephant many years ago in the Mababi country, is known to have held the belief, born of a good deal of experience, that a charging elephant could always be stopped by a bullet in the head or chest. One of these animals, however, upset his theory by coming right on after having been struck, and killing him. During a charge African elephants usually keep up a quick succession of short sharp screams of rage. Sometimes, however, they are perfectly silent.

During the rainy season elephants become excessively fat, and if not much hunted the cows often keep in very good condition all the year round. The meat of the elephant, though very coarse-grained, is well flavoured, and every portion of the animal, except the skin and intestines, is utilised for food by the natives. The skin of the stomach is made into a blanket, and the leg bones, which contain no marrow, when chopped up and boiled yield a lot of fat, which is distributed through

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their structure. The portions of an elephant most fancied by the vanished race of professional hunters in South Africa were the heart, the thick part of the trunk, the fat meat contained in the large hollow above the eye, and the foot. The first was most excellent, as were all the other parts mentioned when sufficiently cooked, though the last required to be roasted (in its skin) in a hole dug in the ground over which a large fire was constantly kept burning for about forty-eight hours, when the inside became gelatinous, and could be scooped out with a spoon. In taste it resembled calf's head. In the centre of the hollows above the eyes of the African elephant there are small holes or ducts which pierce the skin, and through which the animal appears to perspire, as this part of its head always looks black and damp after a run in the hot sun. The strange thing is that these ducts are almost invariably found plugged with bits of stick, which are sometimes about half the thickness of a lead pencil. In 1874 the late Mr. J. L. Garden and myself cut out a number of these bits of twigs. At first we could not believe that they were pieces of stick, but we shaved the bark off some of them and satisfied ourselves on that point. The question arises, how does almost every elephant come to have these two little ducts on each side of its head plugged with bits of twigs. One could understand that in going through the bush, the end of a twig might occasionally get forced into one of these tiny ducts accidentally; but so far as I remember, every elephant we examined had at least one duct stopped up, and usually both. The ends of these little bits of sticks never showed from the outside, and we found the first by accident and afterwards always looked for them. Our bushmen maintained that the elephants inserted these little pieces of stick into the ducts above their eyes themselves, but would not hazard an opinion as to the object of so curious a custom. I do not remember ever to have seen this point referred to, and it is a somewhat curious one. Before the introduction of firearms elephants were killed by the natives of the interior of South

Africa by heavily-shafted assegais, which were plunged into them out of trees, and left to work gradually deeper and deeper into their vitals, or they were sometimes hamstrung whilst standing asleep with very broad and thin-bladed axes made for the purpose. If the "Tendo Achilles" was severed the elephant was anchored, and could be dispatched at leisure with assegais, but when the tendon was not cut through the animal went off and probably recovered. In 1872, whilst hunting in Northern Matabeleland, I came across an elephant with a wound inflicted in this manner that was still sloughing. With either a fore-leg or hind-leg broken an elephant can scarcely move at all. With a broken shoulder he will stand quite still, with the foot of the broken limb just doubled up and resting on its toe. If approached when in so pitiable a plight the poor brute will raise its ears and trunk and scream with impotent rage, and, finally, probably pitch on to its head in a vain effort to reach its enemy. Sometimes, though seldom, elephants are caught in pitfalls by the natives, but I have never known any but young animals to be secured in this way. Sometimes a calf may be jostled in by accident, and I once found a calf that had been trampled to death during the preceding night on the edge of a muddy pool, where a herd of elephants had been drinking. As a rule a herd of elephants will walk through a lot of pitfalls without loss, uncovering them systematically one after another. Although elephant cows with small calves are very liable to be vicious, yet, when a herd is pursued, if a calf is too young to keep up with its mother, it is allowed to drop out and take its chance. Upon three different occasions, however, I have seen full-grown elephants show great solicitude and put themselves into positions of danger in their manifest anxiety for the safety of a wounded comrade.

Let us hope that it will be many a long day before this truly noble and majestic-looking animal, the undoubted lord of the brute creation, will cease to wander over the uninhabited wastes of Africa; and for my part I think it will be, for Africa is a very vast continent, in which there

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will always remain wide areas of uninhabited country, where elephants, although they may become comparatively scarce, are never likely to be completely exterminated.

F. C. SELOUS.

IN BRITISH EAST AFRICA

NDOROBO NAME, *Mbaus* OR *Elkanjauwini* ; *Tembo* AND *Ndovu* OF ZANZIBAR
AND MOMBASA NATIVES

In East Equatorial Africa the elephant still holds possession of its primeval domains ; still roams through the trackless wilds, wrecking the woods ; or at times resorts to the precincts of cultivation, and plays havoc with the natives' crops. Here, except in Uganda and adjoining districts, firearms have not yet taken the place of bows and arrows or spears in the hands of the natives, and vast stretches are almost uninhabited. In these respects the conditions at the present day are not materially different from what they may be supposed to have been almost since the beginning of time. Man has, so far as we know, always co-existed with the elephant ; and, being still in his primitive condition here, takes only, generally speaking, the same toll of the great beasts' herds now as he has ever done—a toll which does not upset the balance. Consequently, elephants are probably about as numerous to-day, in parts of the territory referred to, as ever they were.

It must not be supposed, though, that the whole country is one vast elephant preserve. Far from it. Indeed, you might almost travel through the length and breadth of the land without seeing one, if you did not specially seek for them. Immense tracts are unsuited to the wants of these animals ; and, though they may wander through them in their migrations, it is only in certain widely-separated localities that all the conditions of food, water, and cover are present in the due proportions constituting a

congenial home for them. These conditions are not such as are commonly supposed to appertain to an ideal elephant haunt. It is not in the cool aisles of shady forests, such as one had been accustomed to associate in his mind with these stately creatures—making up with the giant trees a harmonious picture, such as is sometimes described as their natural habitat in Asia—that we find them. Even in the rare localities where such surroundings are to be found in Central Africa, it is not there that the elephant finds his safest resting-place.

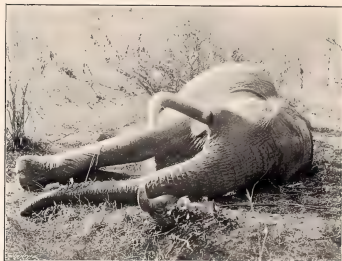


FIG. 1.—Elephant shot at Mount Marsabit, S.E. of Lake Rudolph. Photographed by Lord Delamere.

Those great trunks and spreading branches offer too convenient harbour for possible lurking enemies, while the absence of undergrowth would expose the bulky bodies to attack by poisoned arrows or harpoons. Their tracks, indeed, prove that elephants stray through such forests; and mud smeared on trunks here and there—sometimes to a marvellous height, suggesting fabulous size in the plasterer—is the plainest of attestations; but these visits are paid only in the hours of darkness, as a rule. No tropical luxuriance of vegetation characterises their most frequented

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retreats. The favourite fastness is a dense, but shadeless scrub, little or no taller than themselves; in the mountains, and sometimes by the rivers, leafy—with a profusion of small, rough, rasping leaves—elsewhere parched, thorny, full of briars and spiky plants; but ever thick, monotonous, burning, almost impenetrable. Or the cover may be of giant grass, almost more solid and opaque than the scrub.

In such places you may hear the elephants, you may smell them; but, unless you approach within a few yards, you are not likely to see them. Even then, when, by dint of perseverance, careful exertion, and keen observance of every caution, you have arrived almost without arm's reach, perchance only a huge forehead, a colossal foot, or a great waving ear may be visible.

These covers are scattered, sometimes at widely-separated intervals, through the country, from close to the coast (as in the neighbourhood of the lower Sabaki and Tana rivers) inland. No herd is, however, confined to any one neighbourhood; but varies its feeding grounds, traversing wide intervening tracts—generally by night as far as possible—when moving from one locality to another, either in search of food, water, or on account of being disturbed, or from mere caprice. Well-beaten paths generally connect these different resorts; in fact, so continuously are they linked in this way, that it is impossible to say where the limit of any particular herd's range may be. Climatic conditions have much to do with their movements. During long periods of drought the elephants repair to the mountains, where rain is more frequent, and water always abundant; while the wet season lasts, they wander over the drier and more open country, which is shunned at other times. But the most favourable localities are generally in the neighbourhood of high mountains, or near large rivers or lakes.

The herds are sometimes very large, as many as two or three hundred being occasionally found together, though such herds often break up into

small parties which scatter through a district, keeping up communication, however, among themselves, in so far that they leave the locality, if not quite together, at all events within a day or two, such portions of the herd as have been left behind following in the tracks of the rest.

To a certain extent they vary their behaviour in different districts, according to whether there are natives with skill in the chase; their intelligence enabling them to discriminate between localities where they



FIG. 2.—Elephants photographed by Lord Delamere on the lower slopes of Mount Marsabit, in the Rendile Country, S.E. of Lake Rudolph.

are in danger of attack and those where they are not so—the same herd being more wary in the former case than under safer conditions. In some districts they devastate the natives' crops almost with impunity.

A remarkable illustration of the superiority of the elephant in sagacity over all other wild animals with which I am acquainted is furnished by its capacity for inferring possible danger to itself from the discovery of the remains of one of its own species. If come upon in any stage of decay short of the bones being absolutely bleached clean, these create alarm in

the elephants that have happened upon them : so much so that they will shun the neighbourhood as much as possible so long as any taint is perceptible to their keen sense of smell. No other animal, so far as I know, takes the slightest notice of the carcase of its fellow, except when freshly killed, nor shows any desire to avoid the locality where its decaying remains lie. The rhinoceros, for instance, seems quite incapable of recognising the carcase of another a member of its kind.

In this part of Africa¹ the elephant seems to attain its greatest size. Among those killed by me, the actual dimensions (carefully taken and recorded on the spot) of the biggest bull I measured were—height at shoulder (straight) = 10 feet 9 inches ; length from root of tail to eye (straight) = 12 feet 8 or 9 inches ; circumference of forefoot = 5 feet. Several other bulls of the heaviest type which I measured were hardly, if at all, inferior to this specimen, and the average height of the full-sized male elephant may be fairly put down as from 10 feet 6 inches to 10 feet 9 inches. Probably some individuals may stand 11 feet when alive. I do not believe I have ever seen one 12 feet high.

It is here, too, that the tusks are most fully developed, and the largest known tusks have come from this region. Those of a full-grown bull may weigh anything from 50 lbs. to 100 lbs. or more. As pointed out in my book on *Elephant Hunting*, stallion elephants found among the herds of cows commonly have tusks of about 50 lbs. each, whilst the average of other old bulls' teeth would be from 60 lbs. to 80 lbs. These latter might probably measure about 6 feet in length—of which one-third is in the head and two-thirds protrudes—and some 18 inches or so in greatest circumference. Much larger tusks than these are, however, met with. Up to recently the heaviest known to be in existence was the 184-pounder, measuring 9 feet 5 inches, in the possession of Sir Edmund Loder. This is beaten in length, though not in weight, by a pair I know of in London

¹ East Equatorial Africa.

at the present time, which tape 9 feet 11 inches and 9 feet 7 inches respectively, their combined weight being 259 lbs. But there is a far more marvellous monster still, of which I have authentic news, though I am unable to say where it is at the moment, 10 feet 7 inches long, and 24 inches in girth, weighing no less than 225 lbs. (I believe it also has a mate) ; and there is said to be a record in the Zanzibar custom-house of one which scaled 250 lbs. Cow ivory may run from 12 lbs. to 24 lbs. per



FIG. 3.—Elephants photographed by Lord Delamere on the lower slopes of Mount Marsabit, in the Rendile Country, S.E. of Lake Rudolph.

tusk for mature animals. I have a very exceptional pair weighing 36 lbs. apiece ; but I do not know what may be the greatest recorded weight. The ivory from this part of the continent is also of the best quality, namely, what is called “soft” ivory, and fetches a higher price than “hard” ivory, which mostly comes from the west coast. But even in soft ivory there is a great variety of qualities and a wide range of value, “kalasha” (cow-teeth of about 12 lbs. to 16 lbs.) being the most valuable of all on account of its suitability for billiard balls.

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Elephants' tusks curve upwards and inwards, more or less. Some are much straighter than others, and while most have a marked double bend there are some having the curve only in one plane; but the tendency of all, unless when much worn down at the ends, is for the points to converge. If they pointed outwards, as is often represented in illustrations, and as they are unnaturally made to in some mounted skulls, it would be impossible for the animal bearing a long pair to pass through thick bush without getting constantly hung up. The tusks are sometimes used in digging out roots, and in this way a piece is often broken off the end, while one (generally the right) is almost always more worn than its fellow. There is one peculiar mark, commonly observable, particularly in cow ivory, which I have never been able to account for, and Mr. Selous tells me he is equally puzzled by it. I refer to a narrow groove on one side of the tip of the tusk, evidently caused by friction; but how it is done I am at a loss to explain.

Tuskless elephants are almost unknown in East Equatorial Africa, although in the south they are apparently not uncommon (Mr. Selous often mentions instances). Von Höhnelt speaks of a single specimen (a bull) seen by Count Teleki and himself, and says that it was the only example they met with. I myself have never seen one. Specimens with only one tusk are, however, occasionally found. I believe the tradition that a single tusk is generally of abnormal size is without foundation in fact.

Owing to the nature of the country which they frequent, the pursuit of elephants is, in my opinion, a somewhat dangerous sport; and in this I am supported by the testimony of every one of the few travellers who have tried it in the part of Africa treated of. For my own part I find it the most exciting of any kind I have ever engaged in, as well as the hardest work.

It is true that great skill in marksmanship is not the quality most needed in elephant shooting. Endurance, litheness, aptitude for taking the

best advantage of the circumstances, and, above all, coolness and calm self-control at the supreme moment are of more importance to ensure success ; the steady hand follows as a matter of course. At such very close quarters as the shot has to be generally taken, there is not much room for incorrect shooting, *if only the hunter keep calm*. But should the taunt be indulged in that it is no more difficult than shooting haystacks, it may be pointed out that your live, wild haystack is not easy to kill ; and, moreover, that when it bears down upon you, pouring upon your head, it may be, a shrill



FIG. 4.—Elephants photographed by Lord Delamere on the lower slopes of Mount Marsabit, in the Rendile Country, S.E. of Lake Rudolph.

The long tusk of the elephant on the right hand measured 9 feet 4 or 5 inches on the outside curve.

trumpet-blast, with harshly falling cadence—you being encompassed by a thorny barrier which is no obstacle to the haystack—your sensations are more thrilling than when contemplating the question from the secure vantage-ground of your arm-chair. Of the nature of those sensations it is impossible to convey any adequate idea in words. Mr. F. J. Jackson has given as lucid a definition of the hunter's feelings when nearing this game as is possible in such concise form, when he describes him as being at that moment "a curious mixture of coolness and intense excitement." Nor could the most elaborate attempt do much more. How can the exquisite,

incomparable sensations of the forest—the effect produced on the mind by these wild solitudes where the elephants have their home—be conveyed or suggested to those who have never experienced such feelings? To call up that inexplicable, indefinable thrill is possible to such alone as have felt it—who have the tracings hidden away in those mysterious cells of the brain—and then only under the subtle influence of some conducive condition associated in the mind with the circumstances. The secret of transmitting it to others has yet to be discovered.

I cannot see that the fact of ivory being valuable, and the death of a monster bull elephant meaning the acquisition of a pair of tusks worth possibly £100, necessarily makes the pursuit of these animals a merely commercial affair. That this sum is a matter of moment to the impecunious hunter adds, on the contrary, a keen zest to the chase. The interest of the quest is certainly enhanced by the value of its object. The poor hunter who lives by his rifle may be as keen a sportsman as he to whom money is no object, and who can have every luxury about him even in the wilderness; and I believe the former may get more enjoyment out of the chase.

Elephant hunting is no effeminate sport. It is, on the contrary, the most arduous and exacting pursuit possible; and, when persistently followed up, entails a tremendous strain on the system. Out often long before daybreak and perhaps not back to his gipsy camp with its frugal fare till all hours of the night, “*manet sub Jove torrido venator.*”

That it is a pity to exterminate these interesting animals I freely admit. By all means let sanctuaries be created and strictly preserved, and let such other restrictions as may be necessary *and can be enforced* be enacted. But it is useless to make regulations tending only to hamper a few individual travellers, who can, if shooting loyally, only from their own shoulders, do comparatively little harm in a vast country, while the door is left open for the introduction of guns and ammunition which, when placed in the

hands of the natives, cannot fail to lead to the eventual extermination of the larger wild animals.

I must confess my total inability to understand the attitude of those sportsmen who decry the killing of an elephant as cruel, while they take pleasure in shooting other animals. The view of such humane people as condemn the pursuit of wild creatures altogether is perfectly comprehensible and there is undoubtedly much to be said in its favour. But why it should be more brutal to kill a large than a small beast I fail to see at all. For myself, on the contrary, I must plead guilty to feeling far more compunction if I take the life of a beautiful and helpless little creature, such as one of the tiniest species of antelopes.

A reason often given for crying shame on any one who kills elephants is the assertion that the transport question—such a serious difficulty in Central Africa—might be solved by their means if caught and tamed as in India. No doubt the African elephant, although inferior in intelligence to his Asiatic relative, might be utilised, if captured and broken in, for some kinds of work, and a noble enterprise it would be—though a costly and troublesome one—to inaugurate an elephant-catching establishment in Africa; but that he could perform the ordinary transport of the country, as is rashly asserted by those who have not gone into the question, I do not for a moment believe.

On this matter I have consulted a friend who has had exceptional experience of domesticated elephants in India, and who himself kept a stud of them for many years. He tells me that working elephants are fed on grain, with “fodder” or banana stems, for which may be substituted a particular kind of coarse grass which grows in swamps, or branches of certain trees and other herbage, according to what is obtainable in the country.

Now it must be remembered that India and Africa are two very different countries. In the latter it is most difficult to procure sufficient grain to feed the men alone; and, except in certain special localities, none

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of the other kinds of food are obtainable. As already pointed out, the wild elephants frequent particular widely-separated districts, where the kinds of vegetation they subsist on are more or less plentiful. Even there, except in rare cases, it would be impossible to collect during the halts sufficient to feed marching elephants, and in most places along the route traversed by caravans there is none. It must be borne in mind that animals in a state of nature have nothing to do but seek their food, and elephants may spend the whole night and part of the day in wandering about in search of it, plucking here a mouthful and there a scrap; and it is only in localities where the bayonet aloe (called "makongi" by the Swahilis) grows in beds—a plant which forms the favourite food of the elephant in the districts where it is abundant—that natural provender in quantity could be readily obtained. How, then, are these transport elephants to be fed? Moreover, I am told that, even in India, the ordinary transport of the country is never performed by elephants—they are much too costly a means—and I feel sure that other methods will have to be found to solve that troublesome problem in Africa, though I am far from asserting that in particular districts they might not prove useful.

In hunting elephants the direction of the wind is the most important consideration. They are exceedingly keen-scented, and the slightest suspicion of taint in the air will put them on the alert, and set them feeling about, with the sensitive tips of their trunks uplifted, for the faintest breath carrying confirmation of their fears as to the proximity of their one enemy. Their sight, on the other hand, is not good; and, if you are careful not to expose yourself when creeping up, or when in full view to remain motionless, you are not likely to be detected readily. If it were not for this one fact, elephant hunting would be almost equivalent to suicide. Their hearing is, I believe, acute enough; but they are so accustomed to all sorts of sounds made by their companions that they are not easily alarmed by any slight noise unless endorsed by the evidence of other senses. Even

the report of a gun does not disturb them where they are unaccustomed to it. My Ndorobo friends used to say that elephants cannot keep silent for long. Cows and calves are particularly noisy, a loud cry (made by the young, I fancy) often coming from their herds.

The hunter on his part must listen intently for any sound betraying the position of his quarry, such as a blowing through the trunk and especially the frequent intestinal rumblings.

I will not presume to lay down any rule as to the kind of rifle best suited for elephant shooting ; opinions differ widely. I will only mention the fact that I have killed many (among them several of my biggest bulls) with a service Lee-Metford and common military cartridge (solid bullet), and say that, in my opinion, *penetration* is the most important qualification in arms and ammunition.¹

The brain is most easily reached by a side shot in front of the orifice of the ear ; and, if successfully carried out, this is instantly fatal. The heart is, however, a surer mark, though the effect is not so sudden.

The Ndorobo hunters kill elephants (chiefly for the sake of the meat) with a harpoon thrown from the hand at close quarters, of which the poisoned dart with barbed head remains in the animal, the handle falling off on contact with the branches ; and also by setting traps consisting of a similar weapon in a heavy shaft suspended over a path. The Wakamba organise large hunting expeditions for the acquisition of ivory, which they are now venturing to prosecute farther and farther afield in the almost uninhabited region north of their own country ; these people are most destructive, using small poisoned arrows, shot from weak bows, with which numbers of elephants are wounded which they never get, and some may linger on for weeks, perhaps to die far away, or eventually to recover, as the case may be.

It is often asserted that there is some mystery as to what becomes of

¹ Smokeless powder is an immense advantage.

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elephants that die from "natural causes." I do not think this is so—in Africa at all events—any more in regard to these than any other wild animals. In the first place, when you come upon the remains of an elephant—as I have done frequently in all stages, from the carcase only dead a couple of days to old bones—how are you to tell what caused its death or distinguish between natural and unnatural causes? But, on the other hand, if you argue that elephants do not die of old age because they are not found languishing in the last stage of decrepitude, I would ask, does not that apply equally to all *feræ naturæ*? Do we find other animals at the last gasp, worn out by sheer weight of years? Or do we find their carcases or bones with any distinguishing mark to prove that such has been their end? In the vastness of the forests a sick animal hiding itself away is like a needle in a haystack, and the chances against such a one being run against by the few human beings who penetrate such solitudes are infinite.

A. H. NEUMANN.

IN SOMALILAND

SOMALI NAME, *Maródi*

No Somali game has changed its range so remarkably in recent years as the elephant; and this is due to these animals having been driven away from their old haunts by the attacks of European sportsmen. They had, of course, always been hunted from time immemorial by the native Somali sword-hunters; but that calling entails so much hardship, and is one of such superlative danger, that it is followed by few; and these attacks appear never to have affected permanently the range and habitat of the game. Now that the Abyssinians on the frontier, armed with elephant rifles, are beginning to harry these animals, the case will be different.

When Europeans first thoroughly explored the Somali shooting-grounds in 1884, there were elephants to be found in the interior plains

south of Berbera, between that port and the Golis range, 35 miles inland ; also on Wagar Mountain, south-east of Berbera ; and their tracks could sometimes be seen on the seashore itself near Doghonkal, between Bulhar and Zeyla. They were found near Hargeisa, and came down the Issutugan River to within two days' march of the Port of Bulhar, as the cold of the high interior sent them down the sand rivers at the time when the armo creepers and aloes, of which they are inordinately fond, were in season. Elephants were also numerous in the Gadabursi country. The elephants, driven continually south and east by sporting parties fitting out at Berbera, and south-west by those fitting out at Zeyla, have retired from all the above places, except a few herds which may still linger in the Gadabursi country, a district now reserved by the authorities at Aden for the sport of officers who may be stationed there.

There is practically no elephant shooting to be got in Somaliland north of the Haud waterless plateau, or in the Haud, at the present time. In the south-eastern Haud and in the coast country east of Berbera there never were any elephants.

In the chaos of rugged gorges which descend from the highlands of Abyssinia to Ogaden, in the country about the head-waters of the Webbi Shabeyleh and Juba rivers, there are still plenty of elephants ; but they are in the Abyssinian sphere of influence, mostly in country actually raided annually by the Abyssinians. A few herds, it is believed, wander down those river valleys to the Marehan country, far to the south-east of Berbera, only reached by crossing the broadest part of the Haud, and only, it is believed, penetrated by one European explorer in 1890 ; and that visit being undertaken at the wrong season for elephants, only old tracks were seen.

The chief cause of the elephants having been driven away to such an extent was that many sportsmen were not satisfied with the shooting of a bull or two here and there, but slaughtered cows and young elephants

indiscriminately. This has very rightly been put a stop to by the Aden authorities.

The Somali elephant is a mountain animal, and although the bull attains a height, when full-grown, of about 10 feet 6 inches at the shoulder, the tusks are small when compared with those exported from the East African coast and from the marshes of the Zambesi. From 35 lbs. to 70 lbs. a pair, and a length of 4 to 5 feet for each tusk, would be about the average measurements, though very much larger tusks have occasionally been obtained.

The sport of elephant hunting is probably more exciting than any other afforded by the rifle. The overwhelming size of a bull elephant, his magnificent appearance when angry, with his trunk coiled up and his ears thrown forward like sails, and the speed and ease with which he bears down the thickest jungle, make his charge a thing to be remembered, far more trying to the nerves of the sportsman than that of any other animal. The appearance of a lion when charging, below the line of sight of a man, and easily stopped by comparatively light metal, cannot be compared to it for scenic effect.

Elephants are generally hunted in the daytime, a sport which it is proposed to fully describe. But sport of a very interesting kind can be also had by watching a pool on moonlight nights, when in the dry "jilal" season water is scarce, pools are few and far between, and the game visit the same pool night after night. There are pools of this description in the elephant ground at the sources of the Webbi, on the Galla frontier; and Gordon-Cumming's book on South African shooting will give full details of the method.

Elephants can be hunted in the daytime—the most usual form of sport—either on horseback or on foot. The watering-places they frequent are visited in the early mornings, and if fresh tracks are found, showing that elephants have been there the night before, they are followed up to the

forests, where they will be found feeding or standing about in the heat of the day. The European sportsman, unless mounted on a very clever pony, will find that the forests they frequent, composed of large "guda" thorn-trees with an undergrowth of pointed aloes, are difficult to negotiate when the attention has also to be given to the sport in hand.

By far the most successful mode of hunting elephants in Somaliland is for the sportsman and his gun-bearers, themselves on foot, to co-operate with about a dozen horsemen drawn from the nearest mounted tribe, and this method will now be described in detail.

Assuming that the right season has been chosen—any months will do except the dry "jilal" season—the headquarters camp is established at a spot as far as possible equidistant from two or three forests which elephants are known to frequent. A good headquarters is a tract which affords opportunities of looking for koodoo, lesser koodoo, or oryx while waiting for news of elephants from the more distant jungles.

The twelve horsemen may be sent out, say, in parties of four in three different directions, to look at watering-places for fresh elephant tracks of the night previous; when they are found, two horsemen take them up, while the other two gallop back to the headquarters camp with the news. Everything is of course ready for sleeping out for a night or two, and, mounted either on trotting camel or pony, with the two horsemen as guides and his gun-bearers and trackers, also, if possible, mounted, the sportsman will have started from camp half an hour after hearing the news; the camp being struck at the same time, to follow on more slowly.

By fast travelling, the watering-place where the tracks were found will be reached in two or three hours, and if followed up quickly—for great caution in this case will not be necessary,—the jungle where the herd is feeding will be gained and the two horsemen who are watching the herd sighted early in the afternoon.

The news is then exchanged, the camels or ponies are sent to the

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rear out of the way, and the sportsman and his two or three gun-bearers and trackers will prepare to advance against the herd.

The direction of the wind—the most important thing of all to know in this kind of shooting—must first be tested by throwing up a handful of sand or a tuft of dry grass, or by wetting the finger and holding it up. The four horsemen follow without dismounting, keeping about 200 yards in rear of the party on foot.

So far all has been in the nature of preliminary arrangement; the excitement of the hunt now begins.

The tracks will be easy to follow, marked as the path of the herd will be by pieces of chewed aloe, with the saliva still wet upon them, or by the upturned thorn-trees or the broken branches which the elephants have thrown carelessly aside as they fed slowly along. At last a crash may be heard in the forest 100 or 200 yards distant, or the loud “swish” of a mass of creepers pulled down by a feeding elephant, or again, a sudden squeal or the rumbling sound which elephants give out when feeding may be heard, or the elephants may be quietly standing at rest, grouped together in the shade of a bower of spreading “guda” trees; the moving ears, constantly flapping to keep away the flies, showing as blotches of dull red, the colour of the soil last rolled in, contrasting with the darker foliage. If visible, these spots will at once be seen by the keen-eyed Somali hunters. When first sighted the herd will probably be from 100 to 150 yards away. A hillock, if one can be found near, is the best place to reconnoitre from.

The farther advance is chiefly a matter of wind, for it is mainly on their keen sense of smell that elephants depend for news of impending danger.

The greatest difficulty is to pick out the elephant to be first attacked—the one which is judged to be the largest bull—without giving the wind to any other members of the herd.

FIELD
MUSEUM



CLERMONT
MUSEUM

PLATE I

- | | |
|--------------------------------|--------------------------------|
| 1. Common Rhinoceros Head. | 5. Holmwood's Rhinoceros Horn. |
| 2. Burchell's Rhinoceros Head. | 6. Burchell's Rhinoceros Horn. |
| 3. Common Hippopotamus Head. | 7. Hippopotamus Foot. |
| 4. Liberian Hippopotamus Head. | 8. Rhinoceros Foot. |
| 9. Rhinoceros Foot. | |

It will not, with modern rifles, be necessary to approach nearer than 30 yards, and shots can be taken, where the openness of the jungle will not allow of a nearer approach unobserved, from even 80 or 100 yards. For the first shot at a quiescent elephant any of the modern small-bore, high-velocity rifles of the Lee-Metford type would be very effective and accurate for a head-shot ; but for the further attack on a herd, when the disturbed elephants are rushing about the jungle, there is nothing so good in the writer's opinion as a double 8-bore "Paradox" gun with steel-core bullet, or a double 8 rifle, with at least 10 drs. of powder. Quite recently some gun-makers appear to have contemplated the manufacture of sporting rifles of smaller bore, with new explosives giving the striking energy of an 8-bore, and if this striking energy, with a proper "mushrooming" of the bullet, can be secured, there would apparently be no objection to depending on smaller bore. But it must be remembered that a large proportion of the fatalities with big game are caused by the use of rifles of inadequate power and weight of metal.

The best place in which to hit an African elephant when charging is the chest, and it is also worth while remembering that if an elephant is at close quarters, and the chest is covered by the trunk, a bullet entering the upper part of the trunk, if fired at the right angle, may possibly, with good luck, penetrate to the brain.

The head-shot, over the lower bump of the forehead, so fatal with the Asiatic elephant, is generally considered useless with the African species.

A very fatal shot, if the elephant is found quietly feeding or standing still, is in the temple, half-way between the eye and the root of the ear. Another shot is at the root of the ear. Behind the shoulder, to reach the heart, is a very effective shot, either when the elephant is quiet or when rushing by.

On the first shot being fired, the four horsemen should gallop up to head back the herd as they move off, picking out if possible a single good

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bull ; and if the sportsman is well posted on a knoll, and the whole herd turns back, he may get two or three shots at bulls as they rush past him. His chance of making a bag will be greater if he is a good runner and enterprising enough to keep the herd in sight.

In case of an elephant, when fired at, charging, it is the business of the horsemen to gallop up and distract his attention from the dismounted party and draw his charge ; or if he makes off, he must be headed back to the rifle.

If, as sometimes unfortunately happens, a wounded elephant gets well away with the herd, the horsemen must follow him up for a couple of days or so, so that, if he dies, his death may be reported and his tusks secured.

The cutting out of the tusks is very difficult, and good axes should be obtained when fitting out for the trip. If the carcase is left for a sufficient number of days the tusks can be drawn.

H. G. C. SWAYNE.

THE RHINOCEROS

SUB-ORDER PERISSODACTYLA

Family RHINOCEROTIDÆ. *Genus* RHINOCEROS

The Odd-toed Hoofed Mammals include the rhinoceroses, horses, and tapirs, and may always be recognised by the circumstance that the toes corresponding to the middle finger and toe of man are symmetrical in themselves and larger than either of the others ; such toes being sometimes the only ones present.

The rhinoceroses are bulky, ungainly animals, with three toes to each foot, and a horn on the middle of the nose, not unfrequently followed by a second horn in the middle line of the forehead. They may or may not possess teeth in the front of the jaws ; but the grinding-teeth have always

comparatively low and broad crowns, with a peculiar and characteristic pattern, easy of recognition when once seen. The head is large and massive, with a concave profile, small eyes, and the somewhat tubular erect ears situated far back; the upper lip being often pointed and prehensile. The powerful limbs are relatively short for the size of the body, and each toe bears a hoof-like nail of great breadth. The tail is thin and of medium length; and the skin, which may be divided into several partially distinct shields by deep folds, is of great thickness, and is either nearly naked, or more or less sparsely covered with coarse hair.

At the present day the group is restricted to Africa and the warmer parts of Asia. In Africa it is represented by the widely-spread common or black rhinoceros (*R. bicornis*), the nearly extinct Burchell's, or white rhinoceros (*R. simus*) of the Cape and south-eastern regions, and the little-known Holmwood's rhinoceros (*R. holmwoodi*) of East Africa. All three are distinguished from their Asiatic relatives by their smooth skins and the absence of front teeth; and all have two horns. Burchell's rhinoceros, which is a grass-feeder, differs, however, very widely from the common species in the structure of its cheek-teeth. Holmwood's rhinoceros is at present known only by the horns and may prove not to be a distinct form.

THE BLACK RHINOCEROS (*Rhinoceros bicornis*)

Zwaart *Rhenoster* OF THE BOERS; *Upejana* OF THE ZULUS AND MATABELE; '*Sipejana* OF THE SWAZIS AND MATONGA; *Borele* AND *Keitloa* OF THE BECHUANAS; *Upelepe* OF THE BASUTO; *Chipambiri* OF THE LOWER ZAMBESI NATIVES AND ALOMWE (P.E.A.)¹

The prehensile-lipped rhinoceros, as this beast may be termed, is in one sense an antediluvian animal, the group to which it belongs having made

¹ Portuguese East Africa.

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its appearance as far back as the Miocene, and being numerous during the Pliocene period. In those days some were hornless and four-toed, others horned and three-toed, as in existing types. The thick-jawed rhino (*R. pachygnathus*) is considered the immediate ancestor of *R. bicornis*. The most striking characteristics of the latter are the rounded termination of the nasal bones, the comparatively smooth and naked hide, the pointed, prehensile upper lip, small round nostrils, and the position of the eyes behind the extended axis of the posterior horn. The tail is tufted, the ears are moderately large and more or less fringed with hair. Both sexes carry well-developed horns, differing so much in size and conformation as at one time to have led to a belief in the existence of two distinct species.¹ The following authenticated measurements² of six pairs of horns demonstrate this variation :—

Anterior horn	10 in.	18 in.	28 $\frac{3}{4}$ in.	31 in.	38 in.	41 $\frac{1}{2}$ in.
Posterior „	6 in.	12 in.	8 $\frac{3}{4}$ in.	19 $\frac{1}{2}$ in.	11 in.	10 in.

Cows' horns are usually longer, but more slender than those of the bulls.

These horns, composed of closely-packed horny fibre, are not fixed solidly on the skull, though there are prominences on the latter below each, on the nasal bones for the anterior, and on the frontals for the posterior. But though not actually fixed to the skull, it is an arduous task to dislodge them with a skinning-knife. The average dimensions of an adult bull are as follows :—Tip of nose to root of tail between uprights, 9 feet ; tail, 1 foot 10 inches to 2 feet ; over all, “sportsman's measurement,” about 12 feet ; shoulder height, 5 feet 4 inches. An adult cow will run 10 feet over all, with a standing height of 4 feet 10 inches. Following are the dimensions of my two best bulls :—

¹ It is a remarkable fact that, with the exception of a huge bull I shot in Portuguese Northern Zambesia, I have never met with another long anterior-horned rhino in Central or Central East Africa—i.e. a typical keitloa,—and the natives only recognise the one—*chipambiri*.

² From Mr. Rowland Ward's *Records of Big Game*.

Length in straight line, point of lip to root of tail.	Length of tail.	Sportsman's measurements over all.	Vertical standing height.	Girth of neck.	Girth behind the shoulder.	Length anterior horn.	Basal circumference.	Length posterior horn.	Basal circumference.
10 ft. 1 in.	2 ft. 1 in.	13 ft. 1 in.	5 ft. 7 $\frac{3}{4}$ in.	5 ft. 1 in.	8 ft. 11 in.	32 $\frac{1}{2}$ in.	21 in.	19 in.	15 $\frac{1}{8}$ in.
10 " 3 "	2 " 3 "	13 " 4 "	5 ft. 8 $\frac{1}{4}$ "	5 ft. 2 "	9 " 2 "	20 $\frac{3}{8}$ "	22 "	9 $\frac{3}{4}$ "	18 "

Up to a certain point all sportsmen are agreed as to the character of this pachyderm. He is irritable, nervous, inquisitive, and churlish; unwary and wanting intelligence; harsh and coarse by nature as the thorny vegetation he feeds upon; unsympathetic as the dry, arid districts in which he lives. But when his acts under greater or less provocation are discussed, opinions differ. No doubt, much has been written by those whose experience of the animals has not been sufficient to qualify them to do so authoritatively; hence, from the conduct of a few, certain conclusions regarding rhinoceroses generally, have been arrived at, which wider experience would falsify. On the other hand, we have the testimony of the late Mr. W. Cotton Oswell, Mr. F. C. Selous, and Mr. F. J. Jackson,—the result of wide experience,—and even these differ. The former hunted the rhino in the days of muzzle-loading smooth-bores, before it had learned what a formidable enemy man is, and he naturally found it a morose, fierce-dispositioned creature, from which he had many narrow escapes. Mr. Selous urges that "the danger of hunting him has been much exaggerated," and that he is rather of a cowardly disposition, although not by any means sweet-tempered. Mr. F. J. Jackson says: "There is no knowing what rhinos will do when shot at and wounded," and though not thinking them very dangerous beasts, he has great respect for them, uses heavy rifles against them, has had very exciting encounters with them, and has several times been viciously charged by them. Colonel F. D. Lugard gives similar testimony, and relates how Captain Williams was actually hunted by one. From this, I think we may conclude that, although naturally timid, and certainly not dangerously

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aggressive, the rhino is of most uncertain temper, and when wounded and encountered at close quarters can and will charge most fiercely, and occasionally is as vindictive as any buffalo; my experience, at all events, distinctly points to this conclusion.¹ Rhinoceroses utter three characteristic cries—a succession of deep, *blethering* grunts, made, I fancy, by the males alone, and at certain seasons; the “locomotive” snort, which accompanies a charge or an ignominious flight when suddenly alarmed; and the shrill squeal of approaching dissolution.

A few years ago rhino were far more widely distributed throughout Central South Africa than at present. There are probably not a dozen left in even the remotest corners of the North-Eastern Transvaal, where once they abounded; two or three in the Matamiri bush, and a few in the Libombo range near Oliphant's River Poort represent all. In the rough, broken country south of the Zambesi and east of the Falls, in parts of the Barue country and Chiringoma, P.E.A., they are still fairly numerous, and there are a few in Matabeland, Mashonaland, and Amatongaland. In 1893-94 I found them plentiful in Portuguese Northern Zambesia to the south-east of Tete, and on my last expedition, 1896-97, established the fact of their frequent occurrence in the interior of the Mozambique province.

Rhino lie up during the heat of the day in dense patches of scrub or grass-jungle, or under the shade of a solitary bush or tree in the open, though quite as frequently they are found out in the quivering heat, entirely unsheltered from the sun's burning rays. In hot weather they move off towards their watering-places—which are often far distant—at sunset, drinking between 6 and 8 P.M.; at such times they make a maze of tracks in the sand as they wander from pool to pool. After drinking, they set out in a bee-line for their feeding-grounds, and browse throughout the night, during which they cover a great deal of ground; and even then, it

¹ I know an instance of a native being charged and killed, and of another whom I met personally who was chased and regularly hunted by a wounded one, which caught and fearfully mutilated him.

is a puzzle to know how they support their huge bulk on the poor feed afforded by the sparse, scrubby bush in many localities. In cold weather, and during the dry season, they often get up and feed at once, not visiting the water till midnight or later, this being their only drink for the day ; but in hot weather they pay a second visit, at dawn, to the water, when, if a mud hole is to be found, they wallow as well—a necessary performance for this tick-infested pachyderm. They then seek their mid-day resting-place, seldom moving about after 9 or 10 A.M., except in the wet season, when I have seen them browsing throughout the day. They feed entirely upon the astringent leaves of shrubs and bushes, roots, and the leaves and twigs of the thorny acacias. When eating, they make a loud champing noise with their jaws. The black rhino often deposits his dung—which is dark red-brown in colour—in saucer-like hollows which he scoops out under a bush or tree, and invariably scatters it about afterwards with his horn. These spots are regularly visited—not unfrequently by other animals—till a great pile has been collected. Tracks lead from one such “ dumping-ground ” to another, and deep furrows are ploughed up around them, made, I think, as often by their feet as their horns. They often make crescent-shaped furrows also, in the ground, on alternate sides as they walk along. Rhino almost invariably lie with their sterns to the wind, and, when disturbed, go off at a slinging trot up wind, with their tails screwed up over their backs ; but, if suddenly alarmed, or closely pursued, they break into a gallop which only a good horse can keep up with, but which a rhino can sustain for a long distance. Though they usually run up wind, yet, when wounded, or conscious of pursuit, they hold on down wind everlastingly. I am unable to offer reliable information as to their breeding habits. I have seen a rhino calf about fourteen days old on October 28, and another on November 2, about a month old. On the other hand, my friend Mr. J. J. Harrison shot a cow in October, which had a four or five months’ old calf with her, and I am inclined to think that they are usually born at the

end of the rainy season—the period of gestation being probably sixteen or eighteen months. The flesh of a fat rhino is well tasted, though rather coarse ; I do not like the liver. These animals are in best condition in the autumn.

Rhinos are such unwary beasts, and sleep so heavily, that it would be most absurdly easy to stalk them, but for the fact that in South Africa they are almost invariably attended by “rhinoceros birds” (*Textor erythrorhynchus*), when great judgment and the utmost care is necessary to avoid discovery.¹ In Central Africa I found they were far less seldom attended by birds ; still, rhino often seem singularly restive and suspicious when one is approaching them, even when there are no birds near them, as though they knew instinctively that danger was threatening. Probably their acute sense of hearing, which almost rivals that of scent, is the cause of this. They are the easiest killed of all the larger game, yet, if not hit properly, will give a deal of trouble to secure. Shot through heart or lungs they succumb very quickly, though they seldom drop on the spot ; but if shot through only one lung they will travel till doomsday, although throwing gallons of blood from mouth and nostrils. I consider the neck-shot the very best for a rhino, aiming about a foot behind, and a little below the base of the ear ; the head-shot, 4 or 5 inches before the base of the ear, towards the eye, is a certainty if the beast is quiescent. A mortally wounded rhino will perform the most wonderful antics, spinning round and round in a circle, his head in the centre, and his hind-quarters dancing up and down in an extraordinary style. Usually this signifies impending death, but not always. Frequently they pull themselves together again after it and make a blind forward charge, generally in the direction in which they are facing when they finish their performance. I was one evening watching a track along which a bull and cow rhino with a calf used to

¹ A pair of good field-glasses will enable the stalker to ascertain if any birds are present, before stalking in.

travel to water ; the ground was open, and I had made a little shelter of branches about 30 yards from the track. The rhinos came just after sundown. The bull, however, loitered behind on the forest edge, while the cow and calf advanced, and, when opposite me, the cow deliberately left the track and walked straight towards me. She stood sniffing loudly about 12 yards distant, but I did not want to shoot her, not alone because of her calf, but for fear of scaring the bull, which was in sight. But as she again advanced, I threw a lump of dead wood at her, hitting her on the nose, when she became furious, snorting loudly, charging again and again at the piece of wood, tossing it with her horn and trampling on it. Meanwhile the bull came up, and, stopping just where the cow had turned out, watched the latter, which, with her calf, was now making off towards the water. I fired for his heart, and he at once started waltzing around and squealing loudly. I might have given him another shot, but believed he was done for, when suddenly he made a furious dash in my direction. I had barely time to scramble out of the way when he passed over the very spot I had been sitting on, kicking my water-bottle violently as he passed. He stood again 100 yards beyond, swaying from side to side, then dropped dead. Of course this was a blind charge, made without any intention of injuring me, but I have been most viciously charged by them. In 1894 a rhino cow charged, turned after me when I dodged, and deliberately chased me for over 60 yards, and I only escaped by "going to earth" in a deep "sand crack." Again, in 1896, I twice bowled over a big bull within a few paces, but he recovered himself, and as my gun-bearer had gone off with my spare rifle I had to run for it, closely pursued for a long distance by the bull, which eventually came to grief against a big boulder. I believe that if a rhino, after being wounded, makes you out (their eyesight is very bad) at close quarters, he may be expected to charge, and often does so. It is seldom any use following a wounded rhino, for they keep going on and on for miles until they drop. Some difference of

opinion exists as to what a rhino can do on three legs. I have seen a cow, with her fore-leg broken above the knee, travel for over a mile at a pace that I and my gun-bearer could not keep up with ; and another, also with a fore-leg broken, went over 6 miles, sometimes at a great pace, before I killed her. They are difficult beasts to stop when charging. One must use heavy metal, and either kneel or squat down in order to put a bullet in the chest or throat. The most sportsmanlike method of shooting rhino is by spooring them from their drinking-holes. Water should always be carried on such occasions. Even if disturbed once or twice they do not go far before halting. If they are lying up in thick cover, one's native attendants can be sent in at the far end to drive them out. They will invariably break cover at or near the spot where they entered it, which can be guarded by the sportsman. Following them in thick cover is exciting work, but somewhat unsatisfactory, as the sportsman must get to very close quarters in order to obtain a shot, and is almost certain to be heard by the quick-eared brutes before he can do this. I always find a double .461 Metford, 90/570, a perfect weapon for rhino shooting, but from choice I prefer a double 12-bore, with 6 or 7 drams of powder and a solid hardened projectile of 2 oz. or $2\frac{1}{4}$ oz. Solid bullets alone must be used ; hollow express bullets are useless. The Lee-Metford is said to be very efficient, but I have not tried it ; it is too small for my fancy. In case of a charge, I prefer something heavier and more certain.

F. VAUGHAN KIRBY.

IN BRITISH EAST AFRICA

NDOROBO NAME, *Munyi* ; SWAHILI NAME, *Faru*

The rhinoceros of East Africa is of the kind commonly called the "black," which is, I believe, the only species in all Africa north of the Zambesi. It varies in size in different parts, but in every other essential characteristic it is uniform everywhere. Judging by the dimensions given

by other writers, it attains a greater size in Southern Africa (I have not myself shot any there) ; and in East Africa, too, it seems to become smaller as we go north, as shown by the following measurements, of which the first is from Mr. F. J. Jackson's notes, the other two are my own (the length being *exclusive* of the tail, which measures about 2 feet, more or less) :—
 adult bull (Naivasha), height = 5 feet 5 inches ; length = 12 feet 1 inch :
 adult bull (Seya River), height = 5 feet 3 inches ; length = 10 feet :



FIG. 5.—Black Rhinoceros (*Rhinoceros bicorni*) photographed by Lord Delamere in the Volcanic Country to the east of Lake Rudolph.

The birds on the back are crows, not rhinoceros birds.

adult bull (Lake Rudolph), height = 4 feet 9 inches ; length = 9 feet. (All these measurements were made in straight lines.) Length of horn is, as I have endeavoured to show in the book before referred to, a purely fortuitous individual trait ; and the extremely long horns (mostly of females) which have occasionally been obtained from traders on the east coast and brought home are merely exceptionally fine specimens, selected from among large numbers brought to the coast (the bulk of which, I am told, go to China to be ground up into medicine), and do

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not belong to any distinct species, nor come from any particular region. In proof of this contention I may mention that I have a 40-inch horn, the owner of which I myself shot at the northern base of the Jambeni Range (near Kenia), in a neighbourhood where I hunted a great deal, and saw great numbers of rhinos and shot a good many. The vast majority have quite short horns—under a foot—and anything over 18 inches is uncommon, while a length of 30 inches or upwards is extremely rare.

I believe that rhinoceroses are more numerous in the part of Africa of which I am writing than in any other. In some places they are very common ; so much so, that one may often see many in one day, where the country is sufficiently open for it to be possible to do so, while merely travelling through it. For they do not confine themselves to thick bush, as is the usual habit of elephants ; nor, except where much persecuted by natives, are they so careful to conceal themselves during the day-time. Moreover, though probably in the aggregate less numerous than those animals, they live scattered over the country in pairs or singly, sometimes three, and rarely four being found together, but never more ; and as they keep pretty much, generally speaking, to the particular area embracing their own haunts, and do not migrate from one district to another, as do elephants, they are commonly more in evidence than are these latter.

It is a mistake to suppose, as is sometimes assumed, that the rhinoceros has any tendency to semi-aquatic habits. A wet climate disagrees with him, and during the rains he is always in poor condition, and generally has sores on his body. I believe this to be the reason that there are no rhinoceroses in West Central Africa and that they are much scarcer in the parts of East Africa where the rainfall is greater. The dry, barren wastes of British East Africa seem to suit them best ; here they are equally at home in the dense scrub, such as that which borders the Tana River (where they are very numerous), and in the open, arid plains of Masailand or Leikipia. They are also sometimes met with in the forests, on the

slopes of the principal mountains and ranges. In Uganda, Usoga, and Kavirondo, bordering Lake Victoria Nyanza, on the contrary, where the climate is moister, there are, so far as I am aware, no rhinoceroses ; and similarly they are absent from the neighbourhood of the sea coast. On the other hand, the rhinoceros cannot do without water. He must drink nightly or daily (I have many times watched one drink in broad daylight) ; and, when he can, he likes to take a mud bath. For this reason, though he will wander many miles away in search of food, he is never seen any very great distance from water ; and the sight of one of these animals is a sign that water is to be found somewhere within a distance of not more than about 8 or 10 miles. Rolling in the dust is also a favourite way of making his toilet ; and, in consequence of this habit, he generally approximates in colour to the soil of the country he inhabits. Thus in one district the rhinos appear almost white, in another red, or nearly black, as the case may be.

These creatures wander about and feed all night, and, where not much disturbed, during a good part of the day too, though during the hottest hours they commonly sleep, sometimes under a tree, at others quite in the open. But where much harassed by natives they are seldom or never seen abroad by daylight, but hide themselves away in the densest thickets, so that only the spoor made during their nightly rambles betrays the fact of their presence in the locality.

Although the black rhinoceros does not eat grass, in open country its food consists, to a great extent, of weeds and plants that grow among the herbage of the plains, and it may be seen apparently grazing. During periods of drought, in particular, these animals wander far over the uplands in search of food, coming down during the night to slake their thirst at some pool left in the bed of a watercourse, many miles distant, to which their well-worn paths converge.

As has often been pointed out, the rhino is the most intensely stupid

of animals and marvellously blind. So much so that it may often be approached even on a bare plain with little trouble, *up wind*. It is their very stupidity and blindness which makes these beasts a source of danger to passing caravans ; for, should the wind be blowing *from* them, and unless they be accompanied by tick-birds, as they often are, which alarm them and cause them to make off, they frequently remain unconscious of the approach of a caravan until it is close to them, when, being suddenly confronted with a long line of porters, they will sometimes charge straight through it, apparently under the impression that there is no other way of escape open. On the other hand they are keen-scented ; and if the wind be blowing in their direction they start away at a quick trot as soon as the taint reaches them and while yet a long way off. It is only when wounded that a rhinoceros gallops.

As regards the much-disputed question to what degree the rhinoceros is a dangerous beast, the result of my experience and observations is very decidedly to convince me that, under ordinary circumstances and with proper caution, there is not very much risk in shooting him, and that the danger is not to be compared in any way with that attending the pursuit of the elephant. At the same time, there is always a possibility that one may charge, and there is therefore a certain amount of excitement in the sport ; and instances are not rare of men having been badly injured by these beasts. They are easy to kill. A shot in the heart or through the lungs is quickly fatal. Through, behind, or in front of the shoulder (according to the position), or, if facing the hunter, in the throat (just where the neck joins the chest), are the points I prefer to aim for, though a shot in the brain or the vertebræ of the neck is more instantaneous in its effect.

I should be sorry to enter upon the much-vexed question of the best rifle to use, or to presume to lay down any rule for others as to the size of bore they should adopt ; but I may record the fact that I have not found the need of big bores, and was never more successful than with a common

.303 Lee-Metford, using the ordinary military cartridge with solid, nickel-plated bullet. If a rhino charge home he is generally not difficult to dodge, and when dodged he commonly goes right on. When suddenly disturbed, in his first rush he makes a great puffing and snorting, which is particularly disconcerting in thick cover, when the beast is hidden and it is impossible to tell which way he is coming.

The natural language or call of this creature to its mate—rarely heard, and, in my experience, only at night—is a kind of gurgling grunt.



FIG. 6.—Head of Black Rhinoceros (*Rhinoceros bicornis*) shot to the east of Mount Rulal, East Africa. Photographed by Lord Delamere.

The Ndorobos kill these animals with their elephant harpoons, or trap them in the same manner as elephants. Those I have been among have far less fear of rhinoceros than of elephants, and as a consequence it is a rare thing to see a rhino in country much frequented by such of these people as have much skill and courage in elephant hunting. The same applies to Swahilis, many of whom think nothing of shooting a "faro," though they would not dream of attacking elephants. The Wasanya (who stand in the same relationship to the Gallas as the Ndorobos do to the

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Masai) kill rhinos, as well as elephants and other animals, with their very powerful bows and arrows; while even the puny weapons of the Wakamba, made deadly by the strong poisons with which these people are so well acquainted, are capable of occasionally laying one low.

Swahilis are very fond of rhinoceros meat, and the liver is considered by them a great delicacy. The tongue is, in my opinion, the best part, and is very good when thoroughly boiled; or the tail, well stewed, is not bad; either takes many hours to cook.

A. H. NEUMANN.

IN SOMALILAND

SOMALI NAME, *Wiyil*; ABYSSINIAN NAME, *Aurarisse*

The rhinoceros of Somaliland appears to be the same animal as that found in East and Central Africa. It is found varying very much in size, also in shape and length of horn. I myself have shot rhinoceros with three very marked varieties of horns; one had three distinct horns, the second had a front horn of 29 inches, the other being 12 inches only, whilst the third specimen had a front horn of 17 inches and the other horn 18 inches. The latter animal seems to correspond with the old descriptions of *R. keitloa*. My companion, T. W. B. Greenfield, who had shot many rhinoceroses in the Kilimanjaro country, could see no difference. Half-way across the Haud (the great waterless plateau) I first found their tracks. They are fairly numerous on the southern side of the Haud, and particularly so between Milmil and Imè, and again south of the Webbi Sheybelli.

Rhinoceroses seem to have a great predilection for the tree cactus (giant euphorbia), uprooting it and chewing the branches. The acrid juice of a cactus should tickle even a rhino's palate. The rhinoceros, when unaccompanied by birds, is very easy to approach so long as the wind is right, as it relies almost entirely on its marvellous sense of smell for any warning

of the presence of danger. I should say, from my own observation, that a Somali rhinoceros generally drinks once in twenty-four hours, but often wanders great distances away from water even when quite undisturbed. On one occasion, taking up the night tracks of three rhinoceroses from a water-pool, we followed them for fully five hours without coming up with them. They appeared quite unsuspecting, and had stopped to uproot and feed on several cactus trees. The hide is much prized by the Somalis for fighting shields, as it becomes white and transparent when kept a little time. A dandy warrior generally covers his shield with a piece of calico to keep it clean. From fifteen to twenty-five fighting shields, three-quarters of an inch thick, can be cut from one beast. Some of the Ogaden tribes eat the flesh. It is a very coarse-grained meat, but otherwise good enough, particularly if well pounded between two stones. I had several fruitless hunts after rhinoceros whilst doing forced marches across the Haud. But at Lubba Sunli in Aulihan we found two pools of water, which, from the perfect maze of tracks in the sand, appeared to be the drinking-places of many rhino. It was hopeless ground for tracking, being almost solid rock. I therefore decided to spend the night by one of the pools. This was in a narrow rocky nullah. There was a well-worn path down the steep bank, also up and down the nullah. As there was no bush or cover near enough, I had to make the best I could out of some rocks close to the pool. Two hyænas came and drank early without detecting me, and I was aware of some animal feeding in the bush about 40 yards off. For several hours the stillness was only broken by the splashing of some fish in the pool. At last I was roused from a doze by some heavy animals coming down the track opposite; half-way down they stopped under cover of some bush; then one rhinoceros came sliding noisily down to the edge of the pool. She stared so hard in my direction that I thought she had made me out. I fired at her shoulder with a 10-bore Paradox. She fell to the shot, but, getting on her legs again,

rushed up the nullah. Nothing more came to the water, and as soon as it was light I followed the blood spoor and came up with her a mile up the gorge, when another shot finished her. After photographing her as she lay, I cut seventeen fighting shields from her skin for my men.

At Hagog, south of the Webbi, I remember starting out one evening to try to shoot something for the pot. I had just shot a dik-dik, when, 100 yards farther on, I came on three rhinoceros standing in some open bush. I fired at the biggest with the .577 as they rushed off, and, after following for about half a mile I saw two of them standing on the top of a stony hill trying to wind me. I managed to get up to within 30 yards of the biggest, when I suppose she got a puff of wind, as she then came snorting down the hill like a steam engine. A dozen yards or more away, I got in a good side shot, and 200 yards farther on she subsided. Her appearance was so lifelike that, when the men came up, they would not believe she was dead until they had thrown stones at her. This proved to be a very large cow with three distinct horns, 15 inches, 14 inches, and 3 inches in length respectively.

Farther south, whilst encamped on a bare, stony ridge overlooking a sea of mimosa, where we were hunting for giraffe, I frequently in the early morning saw rhinoceros returning from the water-pools in the hills to lie up for the day in the dense bush below our camp. They were very numerous here.

From this same camp I was riding through the bush one day, and came on two rhinoceros asleep under a mimosa bush; there were no birds with them. I sent the pony back out of harm's way and stood watching them within 20 yards. I suppose they must have got a puff of the wind, as they suddenly jumped up, and I shot the biggest, but let the other go unmolested. This rhinoceros fell where it stood, with a single shot from a .577 behind the shoulder.

Two marches east of Milmil I shot a cow with a fine horn, 29½ inches

in length. I was out in search of lions and came on the fresh tracks of two rhinoceros. I really did not wish to kill any more. However, I thought we were as likely to find lions' tracks by following the rhino as going in any other direction. After following them for about three hours we came on them most unexpectedly in a small patch of grass. One was only a few yards off, but I could only see its horn. I fired a snap-shot where I thought its neck ought to be, and finished it with another shot. I had to shoot No. 2 to save one of my men, whose white loin-cloth had caught its eye.

On my way back to camp I was lucky enough to pick up a leopard, which was squatting in the grass like a rabbit, apparently hoping to escape observation.

I was once encamped at some water-holes called Gô's : everything in a very strong zereba, as there were a good many lions about. About midnight I was awakened by the snorting of a rhino, and the consequent stampede of our seventy camels. How my tent escaped the rush I cannot think. Every camel broke out of the zereba. It was luckily a moonlight night, and they were driven in again, but only to have a second visit from a rhinoceros an hour later. It was the greatest wonder he did not go for the tent ; possibly he was coming down wind, and at night these beasts may not be so aggressive.

An incident which occurred to my companion, G., will give some idea of the distance a rhinoceros will travel. G. had been away from camp for a week after elephants ; meanwhile I had marched on to the next water with the caravan. While sleeping in the bush with his three shikaris and ponies, he was roused by a rhinoceros, apparently intent on attacking the tethered ponies. He could not see to shoot, but some burning brands appear to have scared the brute away. G. took up his tracks at daylight, and, curiously enough, they brought him past my camp, which was a good six hours' march. After a rest he tracked the beast on into some stony hills

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without coming up with it, certainly not less than 25 miles in all, probably many more.

A. H. STRAKER.

THE WHITE OR SQUARE-MOUTHED RHINOCEROS (*Rhinoceros simus*),
SOMETIMES CALLED BURCHELL'S RHINOCEROS

Wit rhenoster OF THE CAPE DUTCH ; *Chukuru* OF BECHUANAS ;
Umhofo OF MATABELE

The great white or square-mouthed rhinoceros is a form which appears to have been evolved in the southern portion of Africa, for, although many other parts of that vast continent would seem to be eminently suited to its habits, it has not yet been met with anywhere to the north of the Zambesi, in Central and Eastern South Africa, or north of the 17th parallel of south latitude in the more westerly portions of the country. To the south of that line, however, this huge mammal was plentiful a century ago all over South Africa north of the Orange River, except in waterless or mountainous districts. In 1812 Dr. Burchell first met with this species in the Batlappeen country, not far from the present native town and mission-station of Kuruman. Probably the range of the white rhinoceros once extended even farther south than this point, but I should doubt its ever having been an inhabitant of the country lying immediately to the north or south of the Orange River, below its junction with the Vaal, as those districts are very arid and do not produce much grass. At any rate all the rhinoceroses met with south of the Orange River by the earlier travellers in South Africa—including Dr. Burchell—seem to have been of the prehensile-lipped or so-called black species. I do not know whether the emigrant Boers, when in 1836 they first entered the country now known as the Orange Free State, met with the white rhinoceros, but I am inclined to believe that they did, as I have had places pointed out to me just north of the Vaal River, on the

open grassy plains of the Southern Transvaal, where examples of this species were encountered by the early Dutch pioneers; and as the pasture to the south of the Vaal River is very good and that stream is easily fordable at many points during the dry season, there is no reason why some of these animals should not have crossed it at certain times of the year. In the north-western portions of the Transvaal the white rhinoceros was formerly very abundant. Cornwallis Harris mentions that on one occasion during the year 1836, as he was travelling through the Magaliesberg district, "eighty were seen during the day's march, and on my way from our encampment in the valley of the Limpopo to a hill only half a mile distant, no fewer than twenty-two were counted, of which we were obliged in self-defence to slaughter four." In a footnote Cornwallis Harris also mentions that Sir Andrew Smith, whilst travelling about the same time through the country some two degrees north of Magaliesberg, encountered during one day's march with his bullock waggons, and without wandering to any great distance on either side of their track, between 100 and 150 rhinoceroses, half of which were probably of the square-mouthed species. Between 1840 and 1850 all travellers who have left records of their journeys report having found the white rhinoceros very abundant all over the country, wherever there was water, to the north and west of the Limpopo between Secheli's country and Lake Ngami. Gordon-Cumming encountered great numbers of these animals, and mentions having seen upon one occasion upwards of a dozen congregated together on some young grass, though he speaks of such a sight as being very unusual.

In one short hunting trip during 1847 or 1848 Messrs. Oswell and Vardon are credited with having killed eighty-nine rhinoceroses, the majority of which were probably of the square-mouthed species.

C. J. Andersson also found these animals very numerous during his travels between 1850 and 1854 in the country lying to the west and north-west of Lake Ngami, and speaks of killing nearly sixty rhinoceroses of both

species during one season. He also mentions the fact of nine of these ponderous animals, which must have weighed some thirty to forty tons in the aggregate, having been killed in one day by a single European at no great distance from Walfish Bay. Yet, notwithstanding the great, and in many instances it is to be feared unnecessary, slaughter of white rhinoceroses which has taken place at the hands of Europeans, South Africa is such a vast country, that in many districts these animals might still have been numerous had it not been for the rapid spread of firearms amongst the native tribes, who have carried the war against these easily-killed beasts into their remotest retreats.

At the date of my first visit to South Africa, in 1871, the range of the white rhinoceros had been very much reduced since the days of Cornwallis Harris, but these animals were still numerous in the uninhabited districts of Matabeleland, Mashunaland, Gazaland, and Zululand, as well as certain portions of the Eastern and South-Eastern Transvaal. In August 1872 I first saw the fresh tracks of the white rhinoceros near Mangwe, about 60 miles south-west of Bulawayo, and a month later met with many of the animals themselves to the north-west of that place. At this time these animals were still very numerous in that part of the country, and whilst elephant hunting during the last three months of the year between the Gwelo and Umniati Rivers, I saw white rhinoceroses almost daily, and sometimes as many as six or eight in one day. In 1873 I was hunting in the country to the west of the River Gwai, and found these animals plentiful to the south of the mountainous tract of country which extends eastwards from the Victoria Falls to the junction of the Gwai and Tchangani Rivers. In the following year I was hunting along the southern bank of the Chobi River, and still found white rhinoceroses not uncommon, but three years later, in 1877, during several months spent in the same district, I only saw the tracks of two of these animals, whilst in 1879, during eight months spent in hunting on and between the Botletlie, Mababi, Machabi, Sunta, and Upper

Chobi Rivers I never even saw the spoor of a white rhinoceros, and the bushmen said there were none left. In July 1884, however, whilst camped near the reed-bed in which the Mababi River loses itself, some natives coming to my camp from their villages a few miles distant came on a white rhinoceros crossing the footpath on its way back to the bush from the water where it had just been drinking. The fact that it came to the water in the middle of the day shows that this animal must have been very thirsty, and had probably come from some vley in the desert country to the south which had lately dried up. I followed its tracks for a long way, but did not come up with it, and never either heard or saw anything of it again. It probably went down the Tamalakan towards the Botletlie, but could not have escaped the bushmen and Masubias—most of whom possessed firearms—for very long. This is the last rhinoceros that I ever heard of in any part of Western South Africa.

In the country to the north-east of Matabeleland, between the Sebakwe and the Manyami Rivers, white rhinoceroses were still fairly numerous in 1878, in which year I one day saw five together, and their numbers only commenced to be seriously reduced after 1880. About that time rhinoceros horns—of all sorts and sizes—increased very much in value, and as ivory had then become very scarce in South Africa, the traders in Matabeleland employed natives to shoot rhinoceroses for the sake of their horns—no matter of what length—and their hides, which were utilised as waggon whips and sjamboks.

One trader alone supplied 400 Matabele native hunters with guns and ammunition, and between 1880 and 1884 his large store always contained great piles of rhinoceros horns, often the spoils of 100 of these animals at one time, although they were constantly being sold to other traders and carried south to Kimberley on their way to England. What caused this sudden demand for short rhinoceros horns from 1880 to 1885 I do not know. But this freak of fashion in knife handles, combs, or what

not sounded the death-knell to the white and black rhinoceros alike in all the country that came within reach of the Matabele native hunters. At this time, however, the Manyami River was looked upon as the boundary of Lo Bengula's dominions to the north-east, and none of his people dared to hunt in small parties much to the east of the Lower Umfuli River; and it thus came to pass that the white rhinoceroses inhabiting a small tract of country between the Angwa and the Manyami, though they were occasionally killed by the natives living in the surrounding districts, were not so systematically slaughtered as their brethren to the west of the Umfuli River. In 1886 two Boer hunters, Karl Weyand and Jan Engelbrecht, shot ten white rhinoceroses in this little tract of country, and five more were killed during the same year by some Fingo hunters who had been long resident in Matabeleland. A few were still left, and in the following year I saw the tracks of two or three of them, but did not come across any of the animals themselves, though one of my waggon-drivers shot a big bull.

It had always been one of my ambitions to preserve a complete specimen of the white rhinoceros for our national collection at South Kensington, and finding the fresh tracks of three of these animals—a bull, a cow, and a calf—when on my way from Matabeleland to the Manyami River in 1882, I followed them up with the intention of killing them and preserving their skins and skeletons. I shot the bull and the cow and let the calf go, but as neither of them had good horns, although they were full grown, I decided not to preserve them, but to try and get better specimens, so I only kept the skull and head skin of the bull, which are now in the South African Museum at Cape Town.

I did not come across any more white rhinoceroses that season, and was not able either then or in 1883, 1885, or 1887 (in all of which years I was camped at no great distance from the country which I knew was their last refuge) to afford the time and expense of making a special expedition after

them. In June 1892, however, my term of service with the British South Africa Company being completed, and having a clear month at my disposal, I left Salisbury with native guides who knew exactly where the few white rhinoceroses still left were to be found, fully determined to secure the skin and skeleton of at least one of these animals. Unfortunately, a fall from my horse whilst chasing an ostrich bruised my leg so badly that I could not put my foot to the ground for more than three weeks, and when I recovered there was no time to go on to the white rhinoceros country and then return to Salisbury in time to carry out an engagement to take a shooting party to the Pungwe River. Therefore the two white rhinoceroses which I shot in 1882 are the last of their species that I have ever seen alive, or am ever likely to see, and when I left Africa towards the end of 1892 I fully expected that these animals would become extinct within a short time, and remain for ever unrepresented in the collection of any European Museum.

Fortunately, however, this fear has proved to have been unfounded.

In August 1892 two members of Mr. Rhodes's Pioneer Force which occupied Mashunaland in 1890 were returning to Salisbury from a trip to the Zambesi. These gentlemen were Messrs. R. T. Coryndon and Arthur Eyre, both of them good field naturalists as well as good hunters and pioneers, and when about 100 miles to the north-west of Salisbury, they ran right into a family of white rhinoceroses—a bull, a cow, and a calf. The bull and the cow were both wounded, but got away, whilst the calf was killed by mistake by a stray bullet. Whilst following the wounded animals on the next day Messrs. Coryndon and Eyre came on to a large cow, accompanied by a half-grown animal and a very young calf. Eyre shot the big cow, and the small calf was captured alive, not without considerable difficulty, but it unfortunately died in a few days' time. The skin and skeleton of the cow were preserved, but had to be abandoned, as it was found impossible

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to transport them to Salisbury. In 1893, however, Mr. Coryndon having been commissioned by Mr. Walter Rothschild to obtain the complete skin and skeleton of a white rhinoceros for the Tring Museum, set out once more for the same part of the country where he had met with these animals the preceding year, accompanied by a large staff of native carriers. He was fortunate enough to come upon two bulls consorting together, and he shot and preserved the skins and skeletons of both. One of these two specimens is mounted in the Mammalia Gallery of the Natural History Museum at South Kensington, and the other is in the Tring Museum. In 1895 Mr. Arthur Eyre obtained yet another white rhinoceros bull in the same district of Northern Mashunaland. This fine specimen was bought by Mr. Cecil Rhodes and presented by him to the South African Museum at Cape Town.

Although it has always been known that a few white rhinoceroses still survived in a certain district of Northern Mashunaland, I think it was generally believed that by 1890 this species had become extinct in every other part of South Africa. In 1894, however, a few of these animals were discovered to be still surviving in a corner of Zululand, and it is said that six of them were shot there during that year. Of these, two fell to the rifle of the late Mr. C. R. Varndell, the skin and skeleton of one of which (a bull) was preserved, and has since been bought by Mr. Carl Jeppe, and presented to the Natural History Museum at Pretoria. Thus it will be seen that the great square-mouthed rhinoceros, the largest of terrestrial mammals after the elephant, which, sixty years ago, was excessively common over an enormous area of country in Southern Africa to the south of 17° of south latitude, and which, even so lately as thirty years ago, was still very plentiful throughout many large districts of that vast country, is now on the very verge of extinction. A few, a very few, still survive in one small district of Zululand, whilst perhaps a dozen others yet wander over the Mahobohobo forests between the Angwa and Manyami Rivers in

North-Eastern Mashunaland. But that twenty of these strange old-world creatures are alive to-day I very much doubt, and in spite of game laws, which may be more or less efficient in Zululand, but in the nature of things must be entirely inoperative in an outlying district of Northern Mashunaland, I cannot think that the species will survive very far into the coming century.

In habits white rhinoceroses were always of a rather sluggish disposition, spending the greater part of the day sleeping in some shady place, either standing, or more usually lying down, in which latter position they looked for all the world like enormous pigs.

In the afternoon, as the sun got low and commenced to lose its heat, they would wake up and begin to feed down to the water, and I have so often seen them drinking just at sunset, both during the cool season and in the hot weather which always precedes the commencement of the rainy season, that I fancy it was their usual habit to drink before dark, when they had no reason to think that they might be attacked at the water. In South-Western Africa, where there are very few running rivers, and where all the rhinoceroses which during the rainy season were scattered over an enormous area of country were necessarily collected towards the end of the dry season in great numbers round the few permanent springs, these animals probably soon learned that it was unwise to drink until after dark, and even then must have found it far from safe, as Andersson and Chapman speak of having killed as many as eight of these animals—besides others that got away wounded—at a water-hole in one night. The food of the white rhinoceros was grass, and never, I believe, anything else, for I never remember to have seen any sign in their dung of their having eaten any kind of leaves or wild fruits, though the ground they used to frequent in parts of Mashunaland was often thickly strewn with several kinds of the latter, on which elephants, koodoos, and elands were fond of feeding. Of all animals—with the exception, perhaps, of the elephant—the

white rhinoceros was the easiest to approach unobserved, if the wind was favourable and there were no rhinoceros birds on him to warn him of danger. Apart from any obstruction of vision caused by the position of the horns, his eyesight was very bad, and I remember to have walked to within 30 or 40 yards of white rhinoceroses upon several occasions without attracting their attention, although apparently in full view of them.

They, however, always seemed to me to be quick of hearing, as the breaking of a small twig or any other slight noise immediately attracted their attention. Their sense of smell too, as with the black rhinoceros and all other animals, was acute. When accompanied by rhinoceros birds, they could not be approached very closely, as these latter always gave the alarm by screeching and running about their heads in an agitated manner. All wild animals in South Africa know that these demonstrations indicate the approach of human beings, and I have seen many a rhinoceros of both the white and black species, as well as buffaloes and other animals, on receiving the well-understood warning, first show unmistakable signs of uneasiness and then run off, without having ascertained the nature of the danger which actually threatened them. When white rhinoceroses got the wind of a human being, even although he was several hundred yards distant, they always at once decamped. When alarmed, they used to start off at a trot, which was so swift, that I never saw a man on foot able to keep up with it. If pursued on horseback, however, they would break from their trot into a gallop, and maintain a speed for a considerable distance, perfectly astonishing in animals of their huge size and ungainly appearance. A white rhinoceros was always an easier animal to shoot from horseback than one of the black species, as the latter animal was not only swifter, but was in the habit of constantly swerving as one ranged alongside, and never offering anything but his hind-quarters to be fired at, whilst one could gallop a little wide of and in front of a white rhinoceros, and

get a good chance of shooting him through the lungs or heart as he came broadside past.

The white rhinoceros always appeared to me an easy animal to kill. A shot through the upper part of the heart was soon fatal. The lungs, too, were remarkably large, and a white rhinoceros shot through both lungs usually succumbed very quickly. If only wounded in one lung, however, or shot too far back behind the lungs, I came to the conclusion that it was of very little use following up a white rhinoceros, as I found from experience that these animals, if they did not succumb to their wounds within a short distance, were likely to travel for many miles before dying or coming to a halt. With a broken hind-leg, neither a white nor a black rhinoceros can run at all, but I have seen an example of both species run a mile with a broken shoulder, going off first at a gallop on the three sound legs, and then slowing down to a halting kind of trot.

When feeding, a white rhinoceros had necessarily to hold its mouth near the ground, as it ate nothing but grass, which at certain seasons of the year was very short, and white rhinoceroses were as fond of young grass as are all other species of grazing animals. And not only when feeding, but at all other times also, did the white rhinoceros hold its head low. When walking, trotting, or galloping, its great square nose was always close to the ground, and if the animal carried a straight horn over $2\frac{1}{2}$ feet in length, or one slightly bent forward, as it was in some instances, the point of the anterior surface got worn flat by constant contact with the ground. A white rhinoceros calf always walked in front of its mother, and she apparently guided it with the point of her horn, which seemed to rest on the calf's hind-quarters. It always struck me as most remarkable how, in all changes of pace, however sudden, this position seemed to be invariably maintained. This mode of procedure evidently struck that observant sportsman, the late Roualeyn Gordon-

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Cumming, and there is a good illustration of it at page 330 of his well-known work on South African hunting. In disposition the white rhinoceros was undoubtedly sluggish, timid, and as a general rule the reverse of vicious, as the very small number of accidents which have taken place in the last sixty years during the extermination of this once numerous species sufficiently proves.

It is true that the late Mr. Oswell had one of his horses transfixed by the horn of one of these animals; whilst the veteran elephant hunter, Mr. Hartley, was also severely injured by a white rhinoceros in Mashunaland about thirty years ago. I remember too to have seen one that I had wounded in 1874 make a charge at one of my gun-carriers, who threw down his gun and climbed a tree. These, however, were only rare exceptions to the general rule, and do not disprove the fact that, speaking generally, the white rhinoceros was a very harmless and inoffensive animal.

The individual differences between the horns of white rhinoceroses were very great. The anterior horns of the bulls might measure from 18 inches to 40 inches in length, when full grown; those of the cows from 24 to nearly 60 inches. As a rule the front horn curved slightly backwards, but was often straight and sometimes bent slightly forwards, at other times strongly curved backwards. The posterior horn varied from a mere lump 3 or 4 inches in height to a horn of 2 feet in length. The longest white rhinoceros horn known is, I believe, now in the possession of Colonel W. Gordon-Cumming. This remarkable specimen, which measures $62\frac{1}{2}$ inches in length over the curve, was brought from South Africa by that well-known hunter, the late Roualeyn Gordon-Cumming. The next longest is in the collection of the British Museum. It is that of a white rhinoceros cow, and measures $56\frac{1}{2}$ inches over the curve. Another fine horn in the possession of Colonel Gordon-Cumming—also brought home by Roualeyn Gordon-Cumming—measures $52\frac{1}{2}$ inches. These two horns—

the $62\frac{1}{2}$ -inch and $52\frac{1}{2}$ -inch—are shown in the illustration. I have seen two very long horns in South Africa, one measuring 54 inches and the other



FIG. 7.—Front Horns of White Rhinoceros.

From specimens in the collection of the late Roualcyn Gordon-Cumming, now in the possession of Colonel W. Gordon-Cumming.

52 inches, and in October 1872 I shot a white rhinoceros cow myself with a beautiful horn, strongly bent backwards, which measured 45 inches

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over the curve. During the same month of the same year three other white rhinoceros cows were shot by Griqua hunters close to my camp, with horns over 3 feet in length, and in July 1880 one of my waggon-drivers shot a white rhinoceros bull with a very fine pair of horns, which I now have in my collection. In this pair the front horn measures $37\frac{3}{8}$ inches in length, and over 27 inches in circumference, whilst the posterior horn is $17\frac{1}{2}$ inches long.

I doubt if there is a finer pair of bull white rhinoceros horns in existence than this, as the males in this species never carried such extraordinarily long horns as some of the cows.

The flesh of the white rhinoceros was always considered by both Dutch and English hunters to be superior to that of any other game animal in South Africa, and in this verdict I entirely agree. The part in greatest favour was the hump, which was situated just in front of the withers. This hump was cut off whole and roasted, just as it was in the skin, in a hole dug in the ground. Towards the end of the rainy season, in February and March, white rhinoceroses used to become excessively fat, and would often keep in very good condition till late in the dry season. I have seen them so fat, that between the skin and the flesh over the greater part of the body there was a layer over 1 inch in thickness, whilst the whole belly was covered with fat 2 inches thick. The fat was soft and oily, well flavoured, and most excellent for culinary purposes. These animals were in the habit of depositing their dung day after day in the same place, and as long as they were plentiful large accumulations were often met with. They must have been a very slow-breeding animal, as, although I have often seen a white rhinoceros cow accompanied by a calf at least three quarters as large as herself, which must have been several years old, only a small number of these had a small calf with them as well. I once saw a cow with two three-parts-grown young ones with her, both about the same size, and presume they were twins, though I should imagine that

it was very rare for a white rhinoceros to give birth to two calves at a time. This particular cow I shot, and we had a lot of trouble to drive her big calves away. They did not attempt to charge, but kept trotting round and hanging about all the time we were cutting up their mother's carcase, and though, when sticks were thrown at them, they often moved away out of sight, they always came back again. They had long been weaned, and were quite able to take care of themselves. When, however, a white rhinoceros calf was very small it was almost impossible to drive it away from its mother's carcase, and it would charge most viciously at anything that approached it, just as a very young elephant will do.

Speaking of the young calf which he caught alive in 1892, Mr. R. T. Coryndon wrote, "When its mother fell, the little calf at once swung round, with ears cocked, charging viciously at anybody coming within 10 yards of the carcase, after every charge returning to the mother and whining for all the world like a fox-terrier pup, though rather louder. As the old cow took no notice of his movements, he put his nose under her and, apparently with the greatest ease, shook the enormous mass of flesh and bones, as if it had been a framework covered with canvas." After Mr. Coryndon had secured this calf he remarked that, "as it lay on the ground struggling hard it began to sweat freely, the moisture dripping off it as though a bucket of water had been thrown over it."

I once recorded a very similar fact concerning a very young black rhinoceros calf,¹ and this profuse perspiration from the backs of young African rhinoceroses is the more remarkable because I have never seen any sign of sweating in an adult either of the black or the white species. In colour the so-called white rhinoceros was a neutral gray. It is true that when standing in open ground on a winter morning, with the sun shining full upon them, they looked very white, and as the Boers must first have

¹ See *A Hunter's Wanderings*, page 361.

encountered these animals on the open grass plains in the neighbourhood of the Vaal River, this fact may have appealed to them, and caused them to bestow upon the square-mouthed rhinoceros a name which has always appeared to me to be singularly inappropriate. I have often seen large sheets of hide from freshly-killed specimens of both species of African rhinoceroses lying in camp side by side, waiting to be cut into sjamboks, and certainly never noticed much difference between the two in the colour of the epidermis, though the hide of the square-mouthed rhinoceros was a good deal thicker than that of the prehensile-lipped species. Cornwallis Harris, however, speaks of the white rhinoceros as varying in colour, but being usually a dirty brownish-white. All that I have seen appeared to me to be of about the same colour, a uniform gray, with no suspicion of brown or white about them.

White rhinoceroses used generally to be met with in pairs or families, a bull and cow living together with a calf, or perhaps two calves, one of which, in such a case, would be quite a large animal.

In old days, when white rhinoceroses were very numerous, no doubt several pairs or families were often attracted to the same piece of pasture, and when feeding near together would have presented the appearance of a herd, though, had such a herd been watched, I expect it would have been seen to break up, and divide into families of three or four, on leaving the feeding-grounds. In height a white rhinoceros bull often stood well over 6 feet at the withers.

Cornwallis Harris gave their height as from 6 feet 6 inches to 6 feet 8 inches at the withers, and Mr. R. T. Coryndon, who is a very careful and reliable field naturalist, has recorded the following measurements of the last two white rhinoceros bulls which he shot in Mashunaland. No. 1—height at shoulder, 6 feet 9 inches; length of anterior horn, 1 foot 11 inches; of posterior horn, 8 inches; length from base of front horn to tip of tail, 16 feet. No. 2—height at shoulder, 6 feet 6 inches; length of anterior

horn, 1 foot 7 inches ; of posterior horn, 7 inches ; length from base of front horn to tail, 14 feet 6 inches.

In 1873 I made a note that I had seen a great many black rhinoceroses and one of the square-mouthed species scrambling with great activity up and down steep stony hills.

This latter animal must, however, have gone astray, as he was the only one of his kind that I ever saw in this kind of ground.

As these animals feed entirely upon grass, open valleys or open forest country with good pasturage amongst the trees, as in Mashunaland, were necessary to their existence, and although they used to be plentiful right up to the edge of the hilly country that extends from the Victoria Falls to the junction of the Gwai and Tchangani Rivers, the beast I have spoken of above was the only one that I ever saw amongst the broken country. Like all rhinoceroses the square-mouthed species was an inquisitive animal. I remember one coming to my camp one night evidently attracted by the fire. We saw it approaching some distance away, as the moon, which was in its first quarter, had not yet set. It came on very slowly until it was within 20 yards of our camp fire, and I could see plainly that it belonged to the square-mouthed species. One of my Kafirs then threw a fire stump at it, which struck the ground just in front of its nose. It at once halted, giving a kind of sniff or snort at the smouldering wood. A second bit of wood burning at one end hit the beast fair on the snout, sending a spray of sparks over it. This seemed to alarm it, for it at once wheeled round and trotted off.

F. C. SELOUS.

HOLMWOOD'S RHINOCEROS (*Rhinoceros holmwoodi*)

The so-called Holmwood's rhinoceros, although it has been classed by scientists, can scarcely be accepted as a true species. It has been mainly created from a number of fine, slender single horns, collected by the late

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Mr. F. Holmwood during a residence in East Africa. It has been supposed, from the appearance of these horns, that the animals from which they were obtained were related to Burchell's rhinoceros. The point is still in doubt, but later opinions of hunters and naturalists incline one to the belief that Mr. Holmwood's specimens merely represent the pick of curious and remarkable horns obtained from the ordinary black rhinoceros. Mr. A. H. Neumann, an excellent authority, states in a note on page 54 of *Elephant Hunting in East Equatorial Africa*, "I have a shrewd suspicion that the range of that interesting species (Holmwood's rhinoceros) is limited to the bazaars of Zanzibar."

H. A. BRYDEN.

THE ASSES AND ZEBRAS

Family EQUIDÆ.

Genus EQUUS.

From other members of the Odd-toed group the horses (under which term are included asses and zebras) differ by the reduction of the toes to a single one in each limb; this being enclosed in a firm and rounded hoof. They have front teeth in both jaws; and the grinding-teeth have very tall prismatic crowns, with their hollows completely filled by the substance known as cement. The neck is maned; the tail, which is long, may be either covered with long hair throughout, or tufted at the end with the same; and peculiar hard callosities are present on the inner sides of either the fore, or both pairs of limbs. The family is now confined, in a wild state, to the Old World, and may be divided into three groups; two of these being represented in Africa, to which one is restricted.

In the asses (sub-genus *Asinus*) the mane is erect, the upper half of the tail short-haired, and the callosities are confined to the fore limbs; the ears being long, the head large, the hoofs comparatively narrow, and the coat uniformly coloured, with the exception (at most) of

PLATE II

1. African Wild Ass Head.

2. Quagga Head.

3. Burchell's Zebra Head.

4. Grèvy's Zebra Head.

5. Mountain Zebra Head.



a dark stripe down the back, another across the withers, and some bars on the legs. The sub-genus is typified by the domestic ass (*E. asinus*), of which two wild races, *E. asinus tæniopus* and *E. asinus somalicus*, inhabit North-Eastern Africa.

The zebras (sub-genus *Hippotigris*), which range over the open districts south of the Sahara, and are peculiar to Africa, differ from the asses in that at least the head and fore-part of the body are striped; the stripes in some cases extending over the whole animal. Four well-marked species may be recognised, viz. :—the quagga (*E. quagga*), now extinct, Burchell's zebra (*E. burchelli*), Grevy's zebra (*E. grevyi*), and the true or mountain zebra (*E. zebra*). Of the second of these at least seven more or less well-marked local races or sub-species may be distinguished, differing from one another in the arrangement of the stripes on the body, the presence or absence of intermediate "shadow-stripes," and the extent to which the striping extends on to the legs.

THE ABYSSINIAN WILD ASS (*Equus asinus tæniopus*)

This may be called the ordinary African wild ass. It has a wide distribution in the desert portions of North-East Africa—Abyssinia, Somaliland, Gallaland, the Soudan, and other regions lying adjacent to the Red Sea. It is manifestly a distinct animal from the Asiatic species, having longer ears, a somewhat shorter mane, and a thinner tail. It is also less rufous in tint, the general body colouring being creamy-gray. Upon the back runs a dark dorsal list, and the shoulders are crossed by a dark striping. The legs are more or less barred. The under-parts are white, as are the muzzle, and a patch under the throat. This fine wild ass stands occasionally as much as 14 hands at the withers, but about 13 hands would probably be a more average measurement.

The late Sir Samuel Baker, in his delightful book, *The Nile Tributaries of Abyssinia*, has a good deal to say concerning this fleet and desert-loving

animal. He says, "Those who have seen donkeys in their civilised state can have no conception of the beauty of the wild and original animal. . . . In its native desert it is the perfection of activity and courage; there is a high-bred tone in the deportment, a high-actioned gait, when it trots freely over the rocks and sand with the speed of the horse. When it gallops over the boundless desert, no animal is more difficult to approach, and although they are frequently captured by the Arabs, those taken are invariably the foals, which are ridden down by fast dromedaries while the mothers escape."

Sir Samuel Baker found the spoor of these animals on the margin of the Atbara River—now so well known. Their drinking time was at night (as is the case with the zebras), after which they betook themselves far into the desert.

These animals are usually found in excellent condition, despite the desert nature of their surroundings. Their flesh is eaten by the Arabs of the Soudan. They are ordinarily met with in twos and threes, or small herds. The bray of this African wild ass is indistinguishable from that of its domesticated cousin, and it may be looked upon as the ancestor of that now inferior race.

H. A. BRYDEN.

THE SOMALI WILD ASS (*Equus asinus somalicus*)

SOMALI NAME, *Duber Dibhuded*

This animal is described in the *Proceedings of the Zoological Society*, 1884, p. 540, as follows: "The Somali ass differs from that of the Nubian Desert in its generally paler and more grayish colour, in the entire absence of the cross stripe over the shoulders, in the very slight indication of the dorsal line, and in the numerous black markings on both front and hind legs."¹

¹ This wild ass was described from a specimen skin procured by Mr. E. Lort Phillips. Mr. Lort Phillips speaks of the animal as "a superb creature, 14 hands at the shoulder." The leg stripings remind one greatly of those in the variety of Burchell's zebra known as *chapmani*.—Ed.

I only shot one, a female. She had a black stripe on each shoulder. Neither stripe was complete, and did not extend to the withers. The stripe on the off side was the most conspicuous. The dorsal line, a well-marked one, extended from the tail to half-way up the back. The general colour of the ass is a French gray. The legs are handsomely marked with horizontal black stripes; those above the fetlocks do not extend completely round the leg, but are, in the fore-legs, on the outside and front of the leg; those on the hind-legs are on the outside and back of the leg. At the fetlocks there are black rings, almost, if not quite, complete. The mane, which stands straight up, is black, with an outside fringe of sandy hair. The tail has a black tuft. This ass is considerably larger than the tame race, and is estimated by me to be about 14 hands high. The domestic Somali ass in many cases has exactly the same black markings on its legs as the wild one. The Somali wild ass is fairly common. I first met with them about twenty miles to the south of Berbera, and they are also found on the plateau to the south of the Golis range. They do not live on the mountain ranges, but frequent the low stony hills in the desert. They go in small herds. The largest I saw consisted of five. They are by no means easy to stalk, and it is difficult to get near them. The only time I ever got very near was when I had shot one, a very long shot; the rest of the herd, after running a short distance, stood looking at the dead one, and let me approach within 60 yards of them before they bolted, although I walked straight towards them without any concealment. Though I did not wish to shoot more than one, I have occasionally stalked and watched them; they feed pretty wide apart from each other. The few I saw with foals had only one young one.

J. D. INVERARITY.

THE QUAGGA (*Equus quagga*)HOTTENTOT NAME, *Quàha*

The true quagga was anciently known to the Dutch of Cape Colony as *wilde esel*, or wild ass, to distinguish it from the true zebra, which they christened *wilde paard*, or wild horse. In more recent times, however, it was more often called, even by the colonists, by its Hottentot name *quacha* (pronounced *quaha*), Anglicised to *quagga*, which was manifestly bestowed upon the animal from the two notes of its cry or neigh. It should be remembered that a good deal of confusion has been created among the uninitiated, from the fact that the Dutch farmers of the Orange Free State and Transvaal, so soon as they discovered the Burchell's zebra in the early years of this century, christened that animal also *bonte quacha*, or striped quagga, and that, ever since, Burchell's zebra has been more often than not loosely referred to, even by English hunters, as a "quagga." From this confusion it was long imagined, even by naturalists, years after the true quagga had become extinct, that that animal was still in the flesh. The extermination of this handsome quadruped has been of such comparatively recent date, between 1865 and 1870 in the Cape Colony, and probably between 1870 and 1873 in the Orange Free State, that it has been thought only fair to include it in a work dealing at length with the game animals of Africa. Its description, habits, and distribution are also likely to be of interest to those sportsmen and naturalists who are now, unhappily, no longer able to set eyes upon the quagga in the living state.

The exact description of the true quagga is, perhaps, best reproduced from the very careful notes of Sir Cornwallis Harris, who encountered the animal when it was still plentiful in the Cape Colony and abounding on the plains between the Orange and the Vaal—in the country now known as the Orange Free State—in the year 1837. "The adult male

stands 4 feet 6 inches high at the withers, and measures 8 feet 6 inches in extreme length. Form compact. Barrel round. Limbs robust, clean and sinewy. Head light and bony, of a bay colour, covered on the forehead and temples with longitudinal, and on the cheeks with narrow transversal stripes, forming linear triangular figures, between the eye and mouth. Muzzle black. Ears and tail strictly equine; the latter white, and flowing below the hocks. Crest very high, arched, and surmounted by a full standing mane, which appears as though it had been hogged, and is banded alternately brown and white. Colour of the neck and upper parts of the body dark rufous-brown, becoming gradually more fulvous, and fading off to white behind and underneath. The upper portions banded and brindled with dark brown stripes, stronger, broader and more regular on the neck, but gradually waxing fainter, until lost behind the shoulders in spots and blotches. Dorsal line dark and broad, widening over the crupper. Legs white, with bare spots inside above the knees. Female precisely similar."

It will be seen from this description that the quagga differed widely from the other three members of the zebra group. In height it stood about on a par with Burchell's zebra—some $13\frac{1}{2}$ hands—but seems to have been somewhat more robustly built. It would appear to have been more easily domesticated than the true zebra. Sparrman, the well-known Swedish scientist, who travelled at the Cape in 1775, mentions having seen a quagga, which, having been caught when it was very young, "was become so tame that it came to us to be caressed. It was said never to be frightened by the hyæna, but on the contrary that it would pursue this fierce animal, whenever this latter made its appearance in those parts, so that it was a most certain guard for the horses, with which it was turned out to grass at night." The quagga was certainly driven in harness, occasionally, both at the Cape and in Mauritius, in the last century, while in the earlier part of the present century Sheriff Parkins was in the habit

of driving a pair in his phaeton about London. Sir William Jardine, the well-known naturalist, who had personal knowledge of the animal, describes the quagga as equal or superior in size to Burchell's zebra, and as "still more robust in structure, with more girth, wider across the hips, more like a true horse; the hoofs considerably broader than in the true zebra, and the neck full, the ears rather small." Jardine describes the animal as the most suitable for domestication of the zebra group, and mentions that he had himself been drawn by one in a gig, "the animal showing as much temper and delicacy of mouth as a true horse." It cannot be said that examples of the Burchell's zebra, broken to bridle and rein in recent years, have shown quite the same adaptability; as a rule they have extremely hard mouths. Again, John Barrow, afterwards the well-known Secretary to the Admiralty, who travelled at the Cape in 1797, says of the quagga: "It is marked on the fore-quarters only; is well shaped and strong limbed, not in the least vicious; but, on the contrary, is soon rendered by domestication mild and tractable; yet, abundant as they are in the country, few have given themselves the trouble of turning them to any kind of use. They are infinitely more beautiful than, and fully as strong as, the mule, are easily supported on almost any kind of food, and are never out of flesh."

On the other hand, although, when captured quite young and domesticated, this animal appears to have been rendered fairly amenable and to have acquired an excellent character, in the wild state it seems to have been savage enough. Cornwallis Harris mentions the death of a native servant whose skull was smashed in by the kick of a quagga, and speaks also of a narrow escape of his own. He mentions also the case of "a wretched savage, every finger of whose dexter hand had been stripped off by the long yellow teeth of a wounded male."

The quagga was almost invariably a denizen of the open plains, where it ran in the old days in very large troops. Occasionally it seems to have been found among the hills, but not often. Barrow, however, a most

reliable authority, thus writes in his book of travels: "The hills that surrounded the plain of Geel-bek (a small river to the south-west of the Great Karroo) were composed of a dark purple-coloured slate; and among these were seen prancing a small herd of that beautifully-marked animal the *zebra*, and a great number of another species of wild horse, known in the colony by the Hottentot name of *qua-cha*." But all travellers and hunters speak of the quagga as a true lover of the wide and open plains, revelling in a perfect state of unrestricted freedom. In the Appendix to his *Wild Sports of Southern Africa*, the book which deals with his famous expedition in the years 1836-37, Cornwallis Harris describes the habitat of the quagga thus: "Still found within the Cape Colony. Inhabits the open plains south of the Vaal River in immense herds." And again, "Moving slowly across the profile of the ocean-like horizon, uttering a shrill barking neigh, of which its name forms a correct imitation, long files of quaggas continually remind the early traveller of a rival caravan on its march." My own inquiries from old farmers, Dutch and British, in Cape Colony, who remembered the quagga in the wild state, have always tended conclusively to show that this animal was habitually a dweller upon the wide karroos and plains.

This animal, like the rest of the zebras, usually drank under cover of darkness, at night or very early morning. Pringle, the poet of South Africa, who lived in the wilderness as far back as 1821, and undoubtedly knew the quagga and its habits very well, thus writes of it:—

And the timorous quagga's wild whistling neigh
Is heard at the fountain at break of day.

In pace the quagga seems to have been fairly fleet, though, perhaps, from its more robust form, not quite so fast as the Burchell's zebra. Sparrman, at all events, speaks of both quaggas and mountain zebras being ridden down by the Cape colonists of his time. At the present day, speaking from personal experience of the chase of Burchell's zebras, I can

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aver that it is by no means an easy matter to ride into one of these animals; and the hunter must be exceedingly well mounted to accomplish the feat. Mr. Selous, however, tells me that he has on several occasions ridden up to and even past a troop of Burchell's zebras. It is possible that the somewhat slower pace of the true quagga may have led to the animal's comparatively early extermination. It is certain that both quagga and Burchell's zebra formerly ranged the plains of the Orange Free State together. It seems equally certain that the true quagga had become extinct there before Burchell's zebra had been shot out. In the old days the frontier Boers of Cape Colony fed their Hottentot and other native servants chiefly on the meat of the quagga and black wildebeest, reserving the daintier venison of the springbuck and other game for their own consumption. It is more than probable that the quagga became exterminated both in the Cape Colony and in the Orange Free State at an earlier period than other varieties of game from the fact that it was more easily shot. The skin, too, of this animal was always in request. The Dutch colonists not only sold it, but themselves used it for a variety of purposes. It made excellent leather for the *velschoons*—home-made shoes—which every up-country Boer still manufactures for himself and his family. And it was used also, constantly, for making hide sacks or bags. I can remember in the Cape Colony, in the year 1876, that wandering Dutch farmers, trekking through the mountains in which I then resided, occasionally pulled out of their waggons old quagga-hide sacks, in which they carried dried peaches, quinces, walnuts, and other articles for sale. These sacks were manifestly of considerable antiquity, for the quagga had by that time become quite extinct in every part of the Cape Colony. In the Orange Free State the Dutch colonists were for more than a generation quite as much hide-hunters as pastoral farmers. They found, unfortunately, a good market for their skins, and they busied themselves therefore in shooting down, at the least possible expense to themselves, and with the greatest possible

economy of powder and lead, the innumerable legions of wild game which then decorated the vast plains of their country. Amongst these myriads of wild game, quaggas, which in Harris's time—1836-37—flourished there “in immense herds,” held their ground in constantly decreasing numbers until about the year 1873, when they seem to have become completely extinct. In the Cape Colony, as I have said, they had become exterminated, even so far north as Colesberg, at latest by 1870, probably nearer 1865. In the Great Karroo, somewhat farther south, where once they roamed in tens of thousands, they had become all but extinct by the year 1860. In 1858 three quaggas yet remained near the Tigerberg, in the eastern part of the karroo. These were seen in that year by my friend the late Mr. J. B. Evans, of Riet Fontein, with whom I formerly sojourned in that region. This last remaining trio must have succumbed to some Dutchmen's bullets shortly after, as my friend never saw them again.

In Gordon-Cumming's early days—1843—quaggas were to be found upon the plains in the north of Cape Colony and especially towards Colesberg in large numbers. At that time the Dutch colonists were with their long “roers” steadily engaged in shooting down the game around them. “During my stay on the flats adjoining Thebus Mountain,” says Cumming, “scarcely an hour elapsed at morning, noon, or eve but the distant booming of a Dutchman's gun saluted the ear.” And so, as in the Orange Free State and Transvaal at a later period, the game vanished from the face of the land.

The range of the true quagga seems always to have been peculiarly circumscribed. Its habitat may be pretty clearly defined as the Cape Colony, westward of the Kei River, some parts of Griqualand West, and the plains of the Orange Free State. Having for many years taken much interest in the history of this quadruped, I have been at great pains both at home and in South Africa to get at the precise limits of its range. I

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cannot find that it was ever known except in these portions of South Africa. It is, however, just possible that it occasionally ranged as far as the southern borders of the Bechuana country. In the old days its habitat extended far south in the Cape Colony, almost up to the verge of the Indian Ocean ; in fact, wherever open country offered a suitable feeding-ground.

Thunberg, one of the earliest European travellers at the Cape—in the year 1773—writes of meeting with quagga on the plains near the Zwartkops River and the adjacent salt-pan, not far from the site of the now great and thriving coast town of Port Elizabeth.

The quagga has been shown but twice in the gardens of the Zoological Society. The last specimen, presented by Sir George Grey, then Governor of the Cape, in 1858, existed till 1872, by which time it was, undoubtedly, one of the very last survivors of its ancient race. Several good photographs of this animal, taken by Mr. Frederick York, are in existence. These were, however, I imagine, taken when the animal was getting on in years, and they can scarcely be considered fair representations of the wild quagga on its native karroos.

Only one stuffed example of the quagga exists in British museums, and that an old, worn, and extremely poor skin, now to be seen in the collection of the Natural History Museum. In Cornwallis Harris's *Portraits of the Game and Wild Animals of Southern Africa*, there is a fair coloured drawing of this animal by the author. The quagga in this picture is, however, made somewhat too equine in appearance, and the reddish-brown body-colouring is a trifle too light. My memory of the body-colouring of the quagga which died at the Zoological Gardens in 1872 is, that it was considerably darker than that depicted in Harris's drawing. Climatic influence may have had something to do with this ; but Harris's drawing is considerably lighter than the colouring mentioned in his own written description in the same handsome folio. The stripings, as may be seen from Mr. York's photograph, a copy of which is to be found at p. 90

of Sir William Flower's little volume on *The Horse*, extended well up to the shoulder, fading away about the centre of the barrel.

H. A. BRYDEN.

BURCHELL'S ZEBRA (*Equus burchelli typicus*)

Quacha OR *Bonte Quacha* OF THE BOERS; *Peetsi* OR *Peetsi Tolatsan*
OF THE BECHUANAS

Although one or other of the sub-specific forms into which this beautiful species has lately been separated by British and German naturalists may still be found to-day in almost every portion of the African continent between Zululand in the south, and Lake Rudolph in the north, the type form of this animal originally discovered by Dr. Burchell in the country immediately to the north of the Orange River appears to be as extinct to-day as its congener the true quagga, whose range having been confined to the plains of the Cape Colony and portions of the territory now known as the Orange Free State, was the first animal in South Africa, after the blaauwbok, to be absolutely exterminated at the hands of advancing civilisation.

The various sub-species into which Burchell's zebra has lately been divided differ one from another not structurally, but in the variations of the striping of their coats, which are probably due to local influences not yet thoroughly understood. Like all the large mammals inhabiting Southern Africa to-day, Burchell's zebras must have spread through the continent from the north, and they appear to have attained their maximum of striping in the well-watered, forest-clad portions of Central and Eastern Africa, and to have become gradually less richly marked as they extended southwards and westwards into countries where the forests grew scarcer and the climate dryer, culminating in the poorly striped quagga of the Cape Colony, which appears to me to be the extreme southerly form of

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the various races of Burchell's zebra, and which certainly does not differ more from the type form of that species than do the sub-species of the same animal found in Mashunaland and Nyasaland. The typical form of Burchell's zebra, with white tail, white legs, and belly also entirely white, except for the median stripe, I have never seen in the flesh. It had been exterminated before my time, and although I think I have shot some Burchell's zebras in Khama's country in which the lower portions of the legs as well as the pasterns and the fetlocks were unstriped, the form I am best acquainted with is that found throughout Mashunaland and South-East Africa, in which the tail is black¹—or nearly so—the stripes on the sides reach to the median line of the belly, and the legs are striped right down to the pasterns and fetlocks, which are themselves black. As, however, the habits of all the different varieties of Burchell's zebras are the same wherever I have travelled, I shall henceforth only speak of them in the course of this article by the name of the discoverer of the type form. In parts of the country where it has not been shot down, Burchell's zebra often runs in large herds of from fifty to over a hundred together. North of the Limpopo, until quite recently, this species was found everywhere where there was water, except in dense jungle. The country it prefers is, I think, open forest intersected by grassy glades, but it is also very partial to large open spaces entirely devoid of bush, such as occur all over the generally forested portions of South-East Africa, and it was once very numerous in parts of the Orange Free State and the Western Transvaal, where the greater part of the country was devoid of forest or bush.

It is often found in very stony ground, and also frequents broken hilly country wherever there are grassy valleys amongst the hills. Its hoofs are beautifully formed for running in rocky ground, being deeply hollowed, and as hard as iron. In shape they are very much rounder than the hoofs

¹ The tail of a Burchell's zebra shot by myself near the Botletli River, Ngamiland, in Khama's country, is whitish upon the upper part, changing to black at the tip.—Ed.

of the ass or the mule, but narrower than those of a horse. Zebras never wander more than a few miles away from water, and the presence of these animals is a sure indication that one is not far distant from a stream or pool.

The Boers of South Africa have but one name for the quagga and all the varieties of Burchell's zebra. They call them all quaggas. This name is, however, not pronounced in the English way, "kwagger," but kwā-hā, in imitation, doubtless, of the cry emitted by the animal, which



FIG. 8.—Burchell's Zebra (*Equus burchelli*) in the Woburn Collection. From a photograph by the Duchess of Bedford.

sounds like the syllables kwa-ha-ha, kwa-ha-ha quickly repeated. This Dutch name, which was originally given to the now extinct quagga first met with on the plains of the Cape Colony, but is now applied and is equally applicable to all the various sub-species of Burchell's zebras met with in South Africa, is interesting as showing that the cry of the two species was exactly similar. This helps to prove, I think, that the original quagga was nothing more than a sub-species of Burchell's zebra.

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I have never heard the cry of the true zebra, which is still found in a few mountainous districts of the Cape Colony, but it is probably different from that of Burchell's zebra, as the Boers never called it the "kwa-ha," but the "wild horse."

The beautifully striped form of Burchell's zebra found in the interior of South Africa is a most handsome and symmetrical animal, standing often upwards of 13 hands at the shoulder. The mares become much heavier and more bulky than the stallions, and often grow excessively fat. When in very high condition there is a deep hollow between their rounded quarters, as may be seen sometimes in a horse, and I have often seen the fat an inch thick over the quarters of a Burchell's zebra mare, between the skin and the flesh.

The fat is of a rich dark yellow, and is considered a delicacy by all Kafir and Hottentot hunters, by whom the meat of this animal is also highly esteemed. Burchell's zebra meat, however, is not popular amongst white hunters, and is said sometimes to cause vomiting in those not accustomed to it. I have certainly found the fat too rich and nauseous to be agreeable, but if steaks are cut from a young Burchell's zebra without any of the animal's own fat and fried with bacon, I do not think most people would find them bad eating, though the meat is perhaps a little sweetish in taste. Burchell's zebras commence to foal in August, like the sable and roan antelope, though most of the foals are born in September. They are very easily caught when young, and soon become quite tame. When very young, if one gallops in between a foal and its mother, it will sometimes follow one's horse right back to camp. These zebras run with considerable speed and endurance, but are not so fast as the large antelopes living in the same country with them, and I have often galloped right through a herd of them. This species is fond of feeding in company with other animals, such as buffaloes, blue wildebeests, elands, gemsbucks, roan and tsessebe antelopes. They are not naturally very wary,

and in parts of the country where they have not been much disturbed, and are therefore unsuspicious of danger, they are very inquisitive. When hunting to the north of the Pungwe River in 1892, in a part of the country where I suppose the Burchell's zebras had never seen a man with any clothes on, these animals often came to within 100 yards to have a good look at me ; on one occasion a large herd came to within 50 yards, and after I had sat down on the side of an ant-heap, stood there staring at me for about half an hour, and only ran off when I at last got up and walked towards them. I once watched a small herd of these zebras approaching my three horses, which were feeding about 200 yards away from where my waggon was outspanned behind a cluster of trees and bushes. They first came boldly up to within 50 yards of the horses, and then stood looking at them for a long time. Then one, bolder than the rest, commenced a cautious approach, closely followed by the rest. After many halts they at last came to within 10 yards of the horses, which had been all the time unconcernedly feeding, without paying any attention to their visitors except now and again looking towards them. At last the boldest of the zebras walked to within 3 or 4 yards of the nearest horse, and, reaching out his nose, sniffed at him, and evidently not quite liking the smell, jumped round with a start and trotted away a few yards, closely followed by his companions. He soon, however, returned and sniffed at the horse again, again springing away suddenly. This performance was continued for more than an hour, when at last the zebras walked off in the direction from whence they had come. I do not think that Burchell's zebras are such savage animals as is usually supposed, since I have seen one or two that were very quiet and well broken, whilst even the half-broken animals, which were at one time used on the coach line between Pietersburg and Tuli, did not seem to me to be very vicious. That they can both bite and kick I know, as I have often seen a wounded one bite the shaft of an assegai, with which a Kafir was despatching it, and I once rode

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up to a wounded one, and just touched it with the muzzle of my rifle on the hind quarters, when it threw up its hind feet like lightning and kicked three of the back-sights off my rifle. Whilst feeding undisturbed Burchell's zebras seldom neigh or emit any sound whatever, but should a herd be pursued and one of their number shot, one or two of the survivors will be sure to be heard repeatedly calling for the missing member of the party.

This call is always kwa-ha-ha, kwa-ha-ha, which, as I have said, has earned for the species the name of kwa-ha (not quagga or kwagger) amongst the Boers of South Africa.

The bold black and white stripings on the coat of Burchell's zebras, which render them so handsome when viewed at close quarters, are not apparent at any great distance. When standing in shade at a distance of 400 yards these zebras look to be of a uniform grayish black colour, but if the sun is shining on them they appear almost white.

F. C. SELOUS.

BURCHELL'S AND GREY'S ZEBRA (*Equus burchelli* and *Equus grevyi*)

IN BRITISH EAST AFRICA

NDOROBO NAME, BURCHELL'S ZEBRA, *Ngwaitiku*; GREY'S ZEBRA, *Kanka*

In East Central Africa we have two totally distinct species of zebra—*Equus burchelli* and *Equus grevyi*.

If you like to distinguish the variety of the former species found in this part of Africa by any other name, such as *chapmani*, *crawshayi*, *granti*,¹ or what not, well and good; but these are mere local varieties of Burchell's zebra, identical in every respect save as to some trifling detail of colour or markings.

¹ The scientific names *antiquorum*, *chapmani*, *selousi*, *crawshayi*, *granti*, and *boëhmi* merely indicate local variations of Burchell's zebra, and are therefore not fully discussed.—Ed.

On the other hand, Grevy's zebra is quite unlike any of them.

He is a very much larger and more powerful animal, with more horse-like action ; but his cry, which is altogether different, is more asinine, and his ears are larger and wider than those of the smaller species. It is unnecessary to give a detailed description of the colouring of Grevy's zebra, but the arrangement of the stripes is very different from what it is in any of the others ; and they are so narrow and so close together, that at a considerable distance the animal appears to be of a uniform dun colour. With regard to the difference between the paces of the two species, I may quote what I have said in *Elephant Hunting in East Equatorial Africa* :—

“The small zebras, when alarmed, start off at a short donkey canter, the legs appearing to be kept very upright, and unless hard pressed, do not ‘lay themselves out’ at all. Grevy's starts off at a trot, with free, high action, and its movements recall those of the horse rather than the ass. Its head is held high, too, while the other keeps a more horizontal position of the neck.”

Again, with regard to their voices ; the cry of Burchell's—indistinguishable in all the varieties—is a succession of melodious barks in double or triple notes, while that of Grevy's I have described in the book above quoted from as “a very hoarse kind of grunt, varied by something approaching to a whistle,” the grunts being long-drawn-out and divided by the shrill whistling sound, as if the latter were made by drawing in the breath which had been expelled during the sustained grunt.

Zebras, like all the genus, are very fond of rolling in the dust, choosing by preference spots bare of grass for the purpose.

The dimensions of some I have measured were as follows :—

Grevy's ♂ height at withers from 4 feet 9½ inches to 4 feet 11 inches.

„ „ girth behind shoulder from 5 feet 6 inches to 5 feet 9½ inches.

Burchell's ♂ height at withers 3 feet 11 inches (two specimens).

„ „ girth behind shoulder 4 feet 10 inches.

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The following measurements of *burchelli*, for which I am indebted to Mr. F. J. Jackson, were taken in the more southerly part of the Protectorate, and seem to show that this zebra runs bigger there than farther north :—

Height (♂) 4 feet to 4 feet $3\frac{1}{2}$ in. ; (♀) 3 feet $8\frac{1}{2}$ in. to 4 feet 1 in.

Mr. Jackson gives the weight (complete) as from about 600 lbs. to near 700 lbs.

To the south and west the limit of *Equus grevyi* appears to be the Tana River from the sea up to where the Mackenzie River enters it from the north, and from there this latter river to its source in the Jambeni Hills ; the boundary seems then to follow that range to Mount Kenia, and thence crosses the Gwaso Nyiro to the Lorogi Mountains, which now become the limit, whence it is continued to the southern end of Lake Rudolph. I am unable to say from personal observation whether this zebra is found west of that lake ; but I do not think that there are any west of the Lorogis at all events.

All along this portion of the range of *Equus grevyi* it is overlapped by that of the other species, and the two kinds are found intermingling freely, though never interbreeding, mixed herds of the two species being frequently met with.

In the opposite (north-easterly) direction the *grevyi* is found through Somaliland, where it is familiar to European sportsmen and whence the type came.

The *burchelli*—in one variety or other—is common all through British East Africa, and I found it still present as far north as the east coast of Lake Rudolph, but cannot say how much farther in that direction or towards the east its range extends.

In my opinion Grevy's is by far the handsomest of the zebras. A sleek fat mare in particular is a most beautiful animal, with an exquisite golden sheen on its glossy coat : no more lovely creature exists.

This large zebra lives chiefly in open or sparsely wooded country. Near the Tana it is found in more bushy ground, but it always avoids anything like thick bush more than does Burchell's. It is mainly an animal of the arid plains, though it also sometimes frequents bare stony hills, but always in barren country where the grass is short. Burchell's, on the other hand, may be found in all kinds of country, except in dense forests and extensive scrubs where there is no open and no grass at all.



FIG. 9.—Head of Grevy's Zebra, photographed by Lord Delamere in valley below Mount Nyiro, at south end of Lake Rudolph.

Zebras (of both kinds, I believe) seem to foal about August or September as a rule, though not uniformly, as I have seen a newly-born foal in May. The herds of *grevyi* are not usually very large, not so large as are sometimes those of *burchelli*. Of the former, from quite a few individuals up to about twenty, or occasionally perhaps as many as thirty, would be the limit in numbers under ordinary circumstances, whereas much larger troops of Burchell's are sometimes seen—even two or three hundred

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under exceptional conditions. As already mentioned, they not infrequently mix together; and it is common to see one stallion Grevy's among a troop of Burchell's—the latter probably likewise all males. The contrast between the two when thus seen side by side is very marked; the upstanding form of the bigger animal appears quite twice the size of the others, the comparison being on a par with that offered by a horse among a lot of ponies. The two kinds do not seem to quarrel, but the stallions of each fight viciously among themselves for possession of the mares, biting each other like horses or donkeys, and their necks are often covered with scars made by the teeth of their rivals.

Whether there is, in this part of Africa, more than one variety of the *Equus burchelli* I am not prepared to say for certain. I have sometimes thought that there were local forms differing somewhat in widely separated regions. But, whether or not, there can be no *specific* distinction. They are all striped to the hoofs, and though there is commonly no "shadow stripe" discernible, I have a foetal skin which exhibits that peculiarity slightly but perceptibly.

Zebras, especially Grevy's, are sometimes very hard to get near in the open, and can only be shot by careful and arduous stalking; at others they will approach of their own accord within shot of a caravan, and even stand and stare at it before starting off again in alarm.

The mares of both kinds get extremely fat when in foal, and most Africans are very partial to the meat. The natives sometimes shoot zebra with poisoned arrows, and occasionally take one in their fall-traps. Other tribes catch them now and again with the noose and wheel snare, mentioned as used for topi hartebeest by the El Gume.

This is another animal, like the rhinoceros, which must drink regularly every day, and consequently it is never found in absolutely waterless country, though it will wander considerable distances in search of pasture, and is attracted far and wide by young grass. On the Sabaki

River, for instance, at some points are narrow paths leading for miles and miles through thick scrub, which during times of drought are worn by the zebras, whose feeding-ground is far away, coming down during the night to drink. The fact that the stomachs of zebras always, or almost always, contain considerable quantities of water, is worth remembering by the traveller in the badly-watered interior of East Africa, as it may afford the means of obtaining a drink when he and his attendants are in sore straits from thirst.

Grevy's zebra is very commonly seen in company with the *Oryx beisa*, both animals frequenting the same class of country. Burchell's also frequently mixes with other kinds of game, occupying the same feeding-grounds.

The difference in the size and shape of the hoofs of the two kinds is very marked, and the horse-like spoor of the larger species is at once apparent to the most unpractised eye as being of a totally distinct character from the donkey-shaped footprints of the other. In stony country the soles of an old Grevy's hoofs are sometimes worn almost quite flat, frog and all.

As is well known, these animals are a very favourite food of the lion. Burchell's in particular may be considered as his staple food in East Central Africa, particularly since the buffalo have been almost exterminated by the cattle plague; and wherever they are numerous, lions are sure to be present in the neighbourhood.

The zebra is rather a soft animal, and one that bleeds profusely; it generally succumbs quickly to any serious wound.

One cannot help wondering whether the grand *Equus grevyi*, or mules bred between it and the ass, might not furnish the hardy beast of burden so sorely needed in this part of Africa, but so far sought in vain.

A. H. NEUMANN.

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GREVY'S ZEBRA (*Equus grevyi*)

IN SOMALILAND

SOMALI NAME, *Fer'o*

This beautiful animal has in the Somali country a sharply defined range, and is found nowhere near the latitudes of the northern coast. It is common in Central Ogaden between the Tug Fafan and the Webbi, some 300 miles south-west of Berbera; but the district where it is found is all in the Abyssinian sphere of influence. There are no zebras known to exist in any part of the British territory either in the explored or in the unexplored tracts.

When Grevy's zebra was for the first time met with in its own haunts by Europeans in 1893, it was found just north of Durhi, in the Malingur country, a few marches south of Sassamani on the road to Imé. Its range extended from there to the foot of the long northern slope of the Webbi Shabeyleh River, almost to the river itself. Zebras are not found so far north as the open prairies of the Haud. They are doubtless found in suitable country everywhere in Gallaland, on the southern side of the Webbi.

The meat of this zebra is highly prized by the Somali tribes occupying the districts it inhabits, the flesh is excellent, rather better, in fact, than any of the antelope venison except the oryx, and is rather like beef.

The localities which these zebras seem to prefer in Ogaden are low plateaux, say some 2500 feet above sea-level, the sides of which fall in broken ravines to the river valleys. On these plateaux is a powdery red surface soil sustaining rich pasture, with occasional outcrops of rock, and stunted thorn forest growing in scattered clumps. The zebras inhabiting this broken, hilly ground are met with in small droves of about half-a-dozen.

In the country mentioned they are very easy to stalk, but no true sportsman would describe their pursuit as sport. There are occasions, however, when the traveller requires a specimen for scientific purposes or

for food, and he will carry away with him from the districts they inhabit scenes which will live ever green in the memory.



FIG. 10.—Dead Grevy's Zebra (*Equus grevyi*). Photographed by Lord Delamere.

The zebra is a most conspicuous ornament to the forest, and so essentially African that no true lover of nature can see a herd of them with indifference.

When travelling, the writer has had occasion to shoot a few zebras, but it is not his intention to describe their death. Only two incidents are



FIG. 11.—Herd of Grevy's Zebras. Photographed by Lord Delamere on plain below hills of Koroli, to south-east of Lake Rudolph.

worth recording. The writer, while looking out for meat for the caravan, was so unlucky as to shoot a zebra mare with a young foal. The latter hung about in the thick bush near the body for some time, but would not

allow itself to be caught. On another occasion, while a wounded zebra was being followed, the fresh spoor of a lion was found imprinted over the tracks, also following the zebra. In Ogaden the lions, in places and districts where kraals are scarce, make zebras their staple food.

H. G. C. SWAYNE.

THE TRUE OR MOUNTAIN ZEBRA (*Equus zebra*)

HOTTENTOT NAME, *Daow*

The true zebra, sometimes called mountain zebra, is known to the Boers of Cape Colony as *Wilde Paard*, or wild horse, while its ancient Hottentot name is *Daow*. In its markings it differs widely from the other members of this group, as may readily be seen by a comparison of the skins. The zebra's body colour is of a clear silvery white, and the dark brown or black markings are distributed over every part of the body except the stomach, which—with the inner parts of the thighs—is pure white. These markings extend right down to the hoofs, and the legs are beautifully and evenly banded. Mr. Rowland Ward has at the present time (1899) a fine stuffed specimen of the mountain zebra, in which, curiously enough, there is a flaw or white space, free from markings, on the near fore fetlock.¹ This is manifestly a "sport," and this zebra is the only instance I have ever seen or heard of, dead or alive, in which the legs are not found perfectly banded down to the very hoof. The muzzle is of a rich tan colour and the rest of the head is evenly marked in bright brown. The mane is erect and is banded in black or very dark brown and white, but is not so bushy and does not come so far on to the forehead as in the Burchell's zebra. The true zebra is less in height than Burchell's and Grevy's zebras, and stands usually from 12 to 12½ hands. The animal is sturdy, short-backed,

¹ An illustration of this "sport" is given on p. 97.—ED.

compact, and well coupled, and the legs are short, clean, and although slender, wonderfully strong and symmetrical. The hoofs are small, neat, asinine in type, and hard as flints. The ears and tail are also distinctly more asinine than equine.

Ever since it has been known to Europeans—that is, since the landing



FIG. 12.—Mountain Zebra (*Equus zebra*). Drawn from a specimen in the Zoological Gardens.

of the Dutch settlers at the Cape in 1652—the true zebra has been remarkable chiefly as a mountain dweller. It is true that from a perusal of old works of travel it appears that this animal was in former times—before it became so persecuted—occasionally seen in the valleys between and near mountain ranges; but it is, and has apparently always been, a lover of mountain country, making its home usually among the wildest and most remote of the steep and rocky sierras of South Africa. Its range

seems always to have been restricted to the southern portions of the African continent, and, so far as at present can be ascertained, it does not occur north of the Zambesi River. Its peculiar habitat may be described as extending formerly from the mountains of Great Namaqualand (and possibly Damaraland), through the various ranges of Cape Colony to the Great Drakensberg chain, and thence to the end of that range. But at the present day, thanks to the persecution which has attended this and so many other of the rarer South African animals, the numbers of this handsome zebra have greatly declined, and it is only to be found in small troops here and there in Cape Colony. It is very doubtful whether any now remain in Great Namaqualand, where, sixty years ago, Sir James Alexander found them in considerable numbers. It is probable that the Hottentots of that country, who are excellent shots and great hunters, have destroyed the last remnants of these animals in the wild ranges of Great Namaqualand. In Cape Colony, where these zebras are, as far as possible, preserved, small troops are to be found in the mountains of the Sneeuwberg, Witteberg, Tandtjesberg, Zwartberg, the Winterhoek, and one or two other ranges. A few still linger along the Drakensberg. I have been told that mountain zebras were formerly known on the Lebombo, but Mr. A. H. Neumann informs me that there are now none on that range. Excepting one or two places in Cape Colony, where they are very carefully preserved, these animals are gradually disappearing from South Africa, and, no great while hence, the species will probably be as extinct as the quagga. They are, I believe, most numerous and best protected in the Tandtjesberg, near Cradock, where, only a few years since, a troop of twenty was seen. These probably owed their immunity to the protection of that good sportsman, Mr. Hilton Barber.

The true zebra, from the fact that it chooses as its dwelling-places wild and precipitous mountains, ranging from 2000 to 5000 and even

7000 feet in altitude, where snow and severe frosts are experienced during the South African winter, is a beast of very hardy habit and constitution. Yet occasionally the weather is so severe among the Cape mountains that even the tough zebra succumbs. It is not very long since several of these animals were found dead upon the mountains near Cradock after severe weather. This zebra is assuredly one of the most active and daring of all the equine race. The way it gets about the rugged and precipitous mountains among which it shelters is, as I can personally testify, perfectly



FIG. 13.—Back of Mountain Zebra. View from top.
Specimen in Rowland Ward's collection, Piccadilly.

amazing, and it can gallop easily up and down most break-neck-looking places with a facility and recklessness which can only have been evolved after long centuries of mountain life. My own experience of this extremely interesting beast in the wild state was gained a good many years ago in a range of the Cape Colony known as the Witteberg, lying between Graaff Reinet and the coast line, a little to the north-westward of the Great Winterhoek. In this wild and little frequented piece of country one troop of mountain zebras remained.

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The friends with whom I was staying wisely refrained from shooting them or allowing them to be shot at, and they were occasionally encountered on some of our expeditions after the mountain antelope. I came suddenly upon them one day, in company with a Kaffir hunter, far up amongst the mountains, amid some of the wildest scenery of the district. We stood within a couple of hundred yards or so, and had ample opportunity to observe the troop, before the stallion, standing sentinel, discovered us. Presently our presence was observed, and at a wild neigh from the stallion the zebras galloped away over the mountain shoulder and were lost to view. On another occasion I saw them descending a steep mountain side, which they clattered down with the greatest apparent ease. As a rule they were most suspicious beasts, extremely hard to get near, and even if we had wanted to shoot specimens, which we did not, we should have had some desperately hard and tough stalking to bring one to bag. The history of this particular troop, which I carefully followed, was a somewhat singular one. The animals occasionally wandered over the mountains beyond our boundaries on to adjacent farms, where they were shot at by Dutch farmers. Their numbers gradually dwindled until only the stallion remained. This animal finally ran with a troop of donkeys belonging to my friends, which were allowed to range the hills, and was driven into a kraal and captured. He was extremely savage, and, although fastened with ropes to a tree, was always ready with open mouth and bared teeth to attack any one approaching him. The animal was full-grown and too old to tame, and ought to have been released. He steadily refused all food, but would drink water greedily, disposing of three buckets at a time. The noble brute, after three weeks' attempt to keep him alive and tame him, finally perished of exhaustion. It was a thousand pities he was held captive so long. Singularly enough, I heard some years after I had left this district that a fresh troop of zebras had trekked into the Witteberg from some other range and had taken the place of this vanished herd upon

my friends' run. So far as I know, these zebras, or their descendants, are still there.

The zebra—probably the recently re-discovered species known as Grevy's—was certainly familiar to the ancients under the designation *hippotigris* (tiger-horse)—by no means a bad name for the animal—and was occasionally exhibited in the Roman amphitheatre. Yet, even at the end of the last century, very little seems to have been known of the animal in modern Europe. Skins were usually sold at furriers' shops as “sea-horse hides,” and the impression seems to have been prevalent that the half-striped quagga, a totally distinct species, was merely the female of the zebra itself. In the old days in Cape Colony the Boers were in the habit of hunting these animals for the sake of their hides, and of capturing the young alive for the purpose of being broken to harness. The adult true zebra is practically untamable, and several instances are on record of the ferocity of these creatures. The Boers, to save themselves the trouble

of shooting, occasionally succeeded in driving a number of these animals over the edge of a precipice, thus securing the skins at their leisure. Pringle mentions the instance of a young Boer who was engaged in this kind of chase. A zebra turned on him, seized him by the foot with its teeth, and actually succeeded in biting and tearing it from the limb. The young Dutchman subsequently died of the wound. But when captured quite young, even the mountain zebra seems to have been capable of being broken and becoming amenable to harness. It is probable, however, that



FIG. 14.—Front legs of Mountain Zebra.
Showing curious white fetlock. See
P. 92.

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this animal was never so readily broken as its cousin the Burchell's zebra, which, in Transvaal coaches, and in London and elsewhere, has been at times readily displayed in harness. A fashion for using mountain zebras in harness seems, however, to have sprung up in the Mauritius, and during the last century a good many of these animals were exported from the Cape to meet the requirements of the French colonists, at that time settled in the Isle of France, as Mauritius was then called. In the year 1742 the Cape Dutch Government issued an order prohibiting the destruction of zebras within the then limits of the Colony, and a premium of £20 was at the same time offered for the young of these animals delivered in Cape Town. It is very clear that the Dutch colonists of those days were no more inclined to pay attention to game laws than they are at present, and the true zebra has steadily continued to diminish, until at the present time it is to be numbered by little more than a few hundred head throughout the whole of South Africa.

It is just possible that within the next few years the researches of travellers and sportsmen in remote and hitherto unknown parts of the African continent may bring to light the fact that the mountain zebra exists in localities north of any habitat of this animal at present known to us. Personally, I am greatly inclined to doubt its occurrence north of Damaraland on the west side, or the Drakensberg on the east side of Africa. My friend Mr. G. W. Penrice, who for some years has been devoting himself to the pursuit of game in the Portuguese territory behind Benguela, in the west of Africa, tells me that he has frequently seen zebras in rough mountain and hill country in these regions. He is not absolutely positive as to species, but he is strongly of opinion that these zebras— notwithstanding their hill-frequenting habits—are Burchell's, and not true zebras. In fact, the only zebras he has shot or seen skins of in this country he believes to be Burchell's. It is a little curious that in this part of Africa this species should be found persistently frequenting quite hilly country.

The mountain zebra is, and has for some years past been, under special protection in the Cape Colony, and can only be shot by a permit from the Governor. Such permission ought now never to be granted, and in practice probably never is. Yet even now, although here and there on certain mountain farms, principally owned by British colonists, the few remaining troops are as carefully protected as possible, this rare and most interesting



FIG. 15.—Variety of Zebra supposed to be new. From a photograph of a stuffed specimen presented to the University of Edinburgh Museum by Rowland Ward.

beast continues, it is to be feared, to decline steadily in numbers. Not all, or anything like all, colonial farms are fenced. The runs are very large. The average South African farm is 6000 acres. A large one is often three times that size. The animals will wander, and it is extremely difficult, even with the best intentions in the world, to ensure the safety of the zebras now remaining to the Cape Colony. There are always Boers and natives ready to take the risk of a heavy fine—a risk, by reason of the very vastness and solitude of the country, not so very great—for the sake of a shot at so big and rare

a creature as a mountain zebra. And so the animals continue year by year to disappear. It is not, I fear, difficult to predict that within the next fifty years this zebra will have joined the ranks of extinct creatures.

H. A. BRYDEN.

THE BUFFALO

SUB-ORDER ARTIODACTYLA

Family BOVIDÆ. *Genus* Bos.

The Even-toed section of the Hoofed Mammals contains a large assemblage of animals agreeing with one another in the essential and easily recognised feature that the toes corresponding to the third and fourth fingers and toes of man are symmetrical to a line drawn between them, and are larger than those on their outer sides, when such are present. The highest development of this type is displayed by the "cloven hoof" of the ruminants and pigs, but the less advanced feet of the hippopotamus conform to the same general plan. In some cases, as in the giraffe, only the two middle hoofs remain, although more commonly, as in the oxen, the small lateral pair are also retained. Many other peculiarities are associated with this characteristic type of foot-structure, but it will suffice to mention in this place that when appendages are present on the head, these take the form of a pair situated on the forehead, although in the giraffe there may be an additional one of a different type in advance of them.

The *Bovidae*, or hollow-horned ruminants, agree with the giraffes and deer in the absence of upper front teeth, and in the crescent-like form assumed by the grinding surfaces of their cheek-teeth. But they are specially characterised by their horns, which take the form of hollow, unbranched, cylindrical sheaths, covering bony processes of corresponding

PLATE III

- | | |
|------------------------------|----------------------------|
| 1. Cape Buffalo Head. | 4. Brindled Gnu Head. |
| 2. Congo Buffalo Head. | 5. White-bearded Gnu Head. |
| 3. Lake Tchad Buffalo Horns. | 6. White-tailed Gnu Head. |



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form arising from the forehead of the skull, to which they remain attached throughout adult life.

In the members of the ox-tribe (*Bos*) the horns are present in both sexes, and are nearly as large in the males as in the females; generally extending more or less outwardly from the sides of the head, and being either cylindrical, compressed, or angulated, without either distinct knots or bold transverse wrinkles or rings. The long tail is either tufted at the end or (rarely) long-haired throughout; the head is massive and carried low; and the large ears may be fringed with long hairs. The colour of the hair is generally uniform, although there may be white "stockings," and (very rarely) a white rump-patch. The face is without glands, and the broad muzzle moist and naked. The females have four teats. Very important is the form of the cheek-teeth, which in the upper jaw have tall, square, prismatic crowns, very similar to those of the horses, but with a different pattern on the grinding surface. Oxen range over all the continents of the world except South America and Australia.

The wild African representatives of the genus belong to the sub-genus *Bubalus*, or buffaloes, in all of which the large horns are more or less distinctly angulated at the base, and are set lower down on the head than in the typical oxen. Although the extreme forms of the series are very unlike, all the African buffaloes may be arranged under a single specific heading (*Bos caffer*), of which the following local races can be recognised, viz. :—

- a. Cape buffalo (*Bos caffer typicus*)
- b. Abyssinian buffalo (*Bos caffer æquinoctialis*)
- c. Senegambian " (" " *planiceros*)
- d. Congo " (" " *nanus*)
- e. Lake Tchad " (" " *brachyceros*)

THE CAPE BUFFALO (*Bos caffer typicus*)

Buffel OF THE CAPE DUTCH ; *Inyati* OF THE MATABELE AND ZULUS ;
Nari OF BECHUANAS AND BASUTOS

The requirements of the Cape buffalo are an abundant supply of water, plentiful pasturage of grass or reeds, and forest or jungle in the near neighbourhood of their grazing-grounds, in which they can find shelter from the heat of the sun. Thus the parched karroos of the western province of the Cape Colony, as well as the open treeless downs of the Orange Free State and a large portion of the Transvaal, must always have been unsuited to their habits, and in these parts of the country they were probably never found ; nor is there any part of the Kalahari Desert or Bechuanaland where water is sufficiently plentiful at the present day to satisfy the wants of the African buffalo, except perhaps in the immediate neighbourhood of a few reed-beds on the Upper Molapo, where large herds of buffaloes were encountered by Cornwallis Harris, but where there is now much less water than there used to be sixty years ago. In the early part of this century buffaloes were met with in Southern Bechuanaland by Campbell and other travellers, at places where, owing to the gradual desiccation of the whole of South-West Africa, buffaloes could not exist to-day, as there is not now sufficient water for their requirements. There is no reason why buffaloes should not have existed along the course of the Vaal River, but I do not know that there is any record of their having been met with in that district.

Fifty years' contact with civilised man and savages armed with the weapons of civilised man—say the half-century which ended with the birth of the year 1896—had sadly reduced the range of the Cape buffalo. But yet, even at that date, these fine animals were still numerous over a large area of country in South-Eastern Africa between the Limpopo and

the Zambesi, as well as on the Upper Cuando or Chobi River; whilst in the forests of the Knysna, near Mossel Bay, as well as in certain districts of the eastern province of the Cape Colony where they are protected by the Cape Government, buffaloes were said to be increasing in numbers. In 1896, however, came the rinderpest, that terrible plague which has lately wrought such havoc amongst the game animals, as well as the domestic cattle, of Southern and Central Africa.

Statistics are still wanting as to the effects of this disease on the herds of buffaloes living in the countries through which it passed to the south of the Zambesi, but as it is known to have almost absolutely exterminated the teeming herds of these animals which once existed all over East Africa, it will probably prove to have been terribly destructive.

I imagine that if a census could have been taken fifty years ago of all the animals existing in Southern Africa to the south of the Zambesi, buffaloes would have proved to have been one of the most numerous species, and might possibly have rivalled in aggregate number the most gregarious of the antelopes, for although blesbucks, springbucks, and black wildebeests were then running in countless thousands on the open plains of the Cape Colony, the Orange Free State and the Transvaal, they were all confined to a comparatively small area of country, whilst the buffaloes roaming in innumerable good-sized herds were distributed over the whole of South Africa, from Mossel Bay to the Zambesi, wherever there was both bush and water.

The first Europeans who, some fifty years ago, penetrated to the southerly portions of the present Bechuanaland Protectorate, and the north-western portions of the Transvaal, met with great herds of buffaloes on the upper waters of all the westerly tributaries of the Limpopo, such as the Marico and Notwani; but in 1872, when I first visited the interior of South Africa, I found that these animals had long ceased to exist on any of the upper tributaries of the Limpopo, though they were still plentiful

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along the central course of that river and on all its northern tributaries to the eastward of the Macloutsie.

In 1876 I came across a large herd of from 200 to 300 buffaloes on the Ramokwebani River, close to the waggon-track leading from Tati to Bulawayo, and at that time there were probably several other considerable herds in South-Western Matabeleland. These, however, were rapidly shot down—chiefly by native hunters armed with good guns and rifles—till in 1895 only one small herd was left in all this part of the country. This poor remnant of many a great herd seemed to be maintaining itself fairly well amongst the thickets of wait-a-bit thorn and redbush, which clothe so much of the country between the Shashani and Shashi Rivers, and if it could have been afforded a small measure of protection, would soon have increased in numbers, but it is to be feared that, as the rinderpest passed through this district, there are now no buffaloes left there to protect.

In the latter months of 1872 I was hunting in the country to the north-east of Bulawayo, and as soon as I got beyond the Matabele kraals and cattle-posts I found buffaloes numerous wherever I went. In 1873 I hunted in the direction of the Zambesi to the north-west of Bulawayo, and travelled over a large area of country to the west of the River Gwai. Everywhere the country was covered with forest and bush, and everywhere, wherever there was water, I found buffaloes, often in very large herds. The following year (1874) I visited the Victoria Falls, and followed the bank of the Zambesi westwards to the mouth of the Chobi, and then hunted for several months along the course of the latter river. At that time buffaloes were still very plentiful along the Zambesi in the neighbourhood of the Falls, and I remember seeing a large herd grazing on a small grassy island to which they must have swum from the mainland; but when we reached the Chobi we found these animals in prodigious numbers all along the river, but never, I think, more than a mile or so away from the water. In 1877 I again visited the Chobi, and although the buffaloes had

been driven from the neighbourhood of Kazungula, the trading station at the junction of the Chobi and the Zambesi, I still found them in immense numbers a little farther up the course of the former river. In 1879 I was hunting farther up the Chobi, beyond the Sunta outlet, and also crossed the various channels and reed-beds through which this river runs, and hunted along its northern bank in the neighbourhood of Linyanti, and everywhere met with buffaloes in surprising numbers. I also found these animals plentiful along the Machabi River (an outlet of the Okavango), as well as in the neighbourhood of the great reed-bed in which the Mababi River loses itself. Up to 1878 buffaloes were also numerous along the Botletlie River near Lake Ngami, but in that year they were all killed or driven away north by the emigrant Boers on their way to Ovampoland. From 1879 to 1891, though my wanderings often took me into parts of the country lying between the high plateau of Mashunaland and the Zambesi River, where buffaloes were fairly numerous, I did not again meet with these animals in very large numbers until I visited the valley of the Pungwe for the first time in the latter year, and again in 1892. During these two seasons I once more found myself in a district where buffaloes were still to be seen almost daily in large herds. However, they were not as numerous as these animals once used to be along the Chobi, nor do I believe that God's cattle, as the natives often call the buffaloes, have ever been seen in greater numbers in any part of the African continent than they had attained along both banks of the Chobi River during the decade which succeeded the overthrow and extermination of the Makololo nation by the Barotsi under their chief Sipopo.

Buffaloes calve during January, February, and March, some months later than any of the antelopes living in the same country with them. The calves are reddish brown in colour when newly born, but, as they grow, the reddish tinge gradually disappears, and they become dunnish

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brown, and do not turn black until they are nearly if not quite three years old. When in its prime the Cape buffalo is covered with a fairly abundant coat of coarse and intensely black hair, and its large drooping ears are edged with long black fringes of a much softer character. The tassel at the end of the tail, though well developed, is perhaps not quite so thick nor so wavy as in the ordinary domestic ox. With age both the bulls and the cows begin to lose their coats, at first along the back behind the shoulders, though the baldness gradually spreads till very old animals become almost as devoid of hair as a wart-hog, and at last lose both the fringes on the ears and the tassel on the end of the tail.

In countries suitable to their habits, and where the pasture is abundant, buffaloes consort together—I suppose I ought to say they used to do so—in herds of from 50 to 200 or 300 individuals, and I once, on the banks of the Chobi, saw at least 1000 of these animals together.

On that occasion, however, I believe that several large herds had joined company, and were moving up the river together in search of grass.

The old bulls that have been driven from the herds by younger and more vigorous males, either live alone or in twos and threes, though in parts of the country where buffaloes are really plentiful five or six old bulls will often consort together, and I once met with fifteen, every one of them long past the prime of life. Such a concourse of old bulls is, I think, very unusual, and would not be possible except in a country where buffaloes were very abundant. In their habits buffaloes almost exactly resemble tame cattle. In hot weather they drink twice a day, early in the morning, and again late in the afternoon. In the cool of the evening and during the early part of the night they feed on grass and young reeds, then lie down till after midnight, getting up to feed again towards morning.

Soon after daylight they again drink, and then continue grazing until the sun begins to get warm, when they retire into thickets or forest where they can obtain shelter from the sun, and here they lie and rest till late in the afternoon. In the cold weather they drink only once a day, usually just after dark. Where they have not been molested, buffaloes will often lie all day long in the shade of trees growing immediately on the banks of the river they frequent.

Especially is this the case with the old bulls. But when persecuted they retire to the densest thickets they can find, and although they never go very far away from water, they will often walk, after drinking, several miles in the bush, parallel with the course of a river, before lying down to rest for the day. Where they have never been hunted, buffaloes are very unsuspicious of danger and very easy to approach against the wind. Old bulls especially will often almost refuse to get out of one's way, but lie or stand gazing unconcernedly at the unwonted sight of a human being, until he is within 50 yards of them, and very possibly one or other of such a party of four or five old outcasts will come trotting a few paces forwards to get a better view. Under such circumstances, however, I have never known a buffalo bull to charge.

If you keep walking steadily towards them, sooner or later one will turn and trot off sideways with his nose in the air, and then break into a heavy gallop, and the rest will immediately follow him.

When much persecuted, buffaloes soon become very wary, and I have known them to entirely desert their usual haunts in thick cover (where the thickness of the bush rendered it easy for a human enemy to creep close up to them unobserved), and resort for their rest during the heat of the day to the open mopani forests, where they could obtain a good view in every direction. In such situations they could not have been comfortable, for they were too much exposed to the heat of the sun, but they were fairly safe, as no enemy could approach them unseen.

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When pursued on horseback, a large herd of buffaloes will only run at a slow heavy gallop, that a horse can keep up with at a hand canter. This is probably because the great mass of the animals composing the leading phalanxes of the herd do not know exactly what the danger is from which they are running, whilst those behind who are bearing the brunt of the attack, and would be inclined to run faster if they could, cannot force their way through the dense masses in front of them. A buffalo, however, though very short in the legs, and very heavily built, is capable of running at a very great pace when so minded. I have known a wounded buffalo cow overtake and dash to the ground a horse that was going at its utmost speed. This horse, however, was old and in low condition ; but it is my experience that a charging buffalo will press the best of South African shooting horses pretty hard for a short distance, and would be very liable to overtake him in anything like thick bush.

When a buffalo is wounded it always seeks thick cover, either amongst jungle, reeds, or long grass. Unless very badly wounded, it will not lie down for some time but stand behind a bush or some other cover, listening intently and with its head turned looking back along its tracks. If approached incautiously in such a position, it will charge with hoarse grunts when its pursuer is within ten yards of it, and nothing will stop it but a shot in the brain or some other spot, which will paralyse and bring it to the ground in spite of itself. But as a buffalo always charges with his horns laid back on each side of his neck, and his nose held straight out in a line with his back, it is very difficult to hit him in the brain, and a bullet in the chest and right through the heart, even with a very heavy rifle, will not stop him in a charge at close quarters, though of course it will kill him within a short time. Thus a wounded buffalo, if followed into thick cover, becomes a very dangerous animal, as he is very hard to see until you are close upon him, and very difficult to avoid or stop when he charges. Many accidents have happened under such circum-

stances, but, considering the enormous number of buffaloes that have been shot in Southern Africa by Boers, Natives and Englishmen, these accidents have been proportionately very few and far between. Personally I do not consider the Cape buffalo—and I have had an immense experience of these animals, and have shot well over two hundred of them, mostly on foot, in every kind of surroundings—to be a naturally vicious or ferocious animal.

Approach an old bull incautiously, when he is smarting from wounds recently received from lions, or at the hands of a human hunter, and he will very likely charge without any further provocation.

Otherwise, though he may not be inclined to run away very readily, in a country where he has previously had no enemies to fear but lions, he will not molest you, but will sooner or later give way before you. When wounded, a buffalo nearly always does his best at first to get away, and so long as he is pursued through open forest, in which he is able to see his assailant approaching from a distance, will seldom charge but keep on retreating. When followed into thick cover, however, it is a different matter, for a wounded buffalo may be expected to charge should he suddenly see his enemy appear within a few yards of him. In comparing the relative danger of buffalo hunting and lion hunting, I would put the matter thus. In ground where one might follow a wounded buffalo, without danger, or but very little danger, it would always be dangerous to follow a wounded lion; whilst in ground where it would be really dangerous to follow a wounded buffalo, it would be more dangerous still to follow a wounded lion—at least in South Africa, where a wounded lion is always extremely likely to charge. In my experience, I have not found old buffalo bulls more inclined to charge when wounded than herd animals, and, taking a long average, the young bulls when nearly but not quite full grown are, I think, the readiest to resent ill-treatment. However, I must confess that an old buffalo bull, when disturbed, and standing with nose

upraised, gazing fixedly at the intruder upon its solitude, with eyes which look sullen and gloomy beneath the massive horns which overshadow them, has all the appearance of a savage and dangerous animal, though, as a matter of fact, in the great majority of cases he is neither the one nor the other, but only ignorant and inquisitive, never having seen such a thing as a man with hat and clothes on him before. A little hunting causes buffalo bulls to give up this bold and truculent bearing, and they soon learn to run off as soon as they can make out the figure of a man approaching them. Nothing made of flesh and blood in South Africa is more tenacious of life than a buffalo, though of course nothing can long survive a shot through the upper part of the heart, or through the big blood-vessels of both lungs.

This latter is the better shot, I think, as the wounded animal can be so easily tracked by the blood which will be plentifully thrown from the mouth and nostrils. Should a buffalo, when fired at, drop instantly to the shot, it is always unwise to approach him incautiously with an unloaded rifle; for, if he is only momentarily paralysed by the shot having grazed the vertebral column in the neck or along the back, he may recover himself and spring to his feet at any moment, and if he does so, he is pretty sure to charge any one he may see close to him. When a buffalo rises from the ground, he gets on to his hind-feet first, like an ox, and this sometimes gives one time to fire into his head or chest before he gets into a standing position. When dying, a buffalo nearly always gives vent several times to a moaning bellow, which can be heard at a considerable distance, and when once heard will never be forgotten.

I once heard a buffalo calf, which had got separated from its mother, calling very much like the calf of a domestic cow; but as a rule buffaloes are very silent animals. I have often listened for over an hour at a time to large herds feeding at night within a few hundred yards of my camp, and never heard any sound made but an occasional short grunt, though I have

heard a buffalo bellowing, when attacked by lions, just like an ox. Buffaloes are strong swimmers and take to the water readily, either to escape danger or in search of pasture. They swim very low in the water, with only the eyes, nostrils, part of the horns, and a portion of the hind-quarters above the surface. The horns of buffalo bulls attain their full length before the animals are fully adult, and while the lower portions of the horn-cores in the centre of the forehead are still covered with skin, as in the cows. The shell of each horn then begins gradually to displace the skin on the forehead, until at last two great rounded plates of horn are formed, which overshadow the eyes and often touch one another in the centre. When, however, they actually touch in a living buffalo, they soon shrink apart after death, and it will then be seen that there is a narrow strip of skin, perhaps a quarter of an inch in width between their bases, which connects the skin between the eyes with that behind the horns. A good pair of buffalo horns will measure 3 feet 6 inches in a straight line from bend to bend (outside measurement), and 15 or 16 inches in depth over the forehead. They sometimes attain a spread of 4 feet, but as a rule very wide horns are not very deep in the cushion.

The widest pair I have in my collection (though I have, I am sure, shot finer specimens, that I did not measure, as I could not carry them) has a spread of 3 feet 8 inches, and a depth of 14 inches, whilst another pair measures $16\frac{1}{2}$ inches over the cushion, with a spread of 3 feet $4\frac{1}{2}$ inches. Although buffaloes do not usually stand more than 4 feet 10 inches at the shoulder, they must weigh very heavy, as, though they are very short in the legs, they are enormously bulky. The bulls stand but little higher at the shoulder than the cows, but they are much more heavily built, with immense necks, and therefore look much larger.

F. C. SELOUS.

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IN BRITISH EAST AFRICA

Known by two names amongst the Swahilis—*Nyati* and *Mbogo*, the latter being most in use amongst the Zanzibaris, whilst the people of Mombasa, Melindi, and Lamu know it by the former name. Amongst the Masai the buffalo is known as *Lasowan*, and by the Wanderobbo living in the forests of Mau as *Lasoit*.

The buffalo is now one of the rarest beasts in East Africa. Up to the end of 1889 and the beginning of 1890 it was exceedingly plentiful in that region, and was found nearly everywhere throughout the country where there was good grass and water. On the coast it was found in large herds quite close to the sea on the mainland near Lamu; on both banks of the River Tana; at Merereni near Mambui; and even within three or four hours' walk of Mombasa, at the back of Freretown, there were a fair number. Its real stronghold, however, was undoubtedly the Masai country. Here, with perhaps the exception of the zebra and hartebeest, it was the most common of all the big game. From the southern slopes of Kilimanjaro to Lake Baringo it was practically unmolested by the natives, and was so abundant that scarcely a day passed without the hunter coming across one or more of them. In the northern part of Masailand, between Lakes Elmeteita and Baringo, they were found in quite extraordinary numbers, and were to be seen out in the open plains even at mid-day and far away from covert of any kind. In one day's march of about 15 miles, I once saw six large herds, one of which had to be driven off to allow the caravan to pass.

It was close to this point where Count Teleki, from a camp on the Guaso Niyuki, killed fifty-four of these beasts between 20th December 1887 and February 1888.

The banks of the Turkwel River, which rises in Mount Elgon and flows east to Ngoboto, were another stronghold where they were very plentiful in large herds. Again, on the Mau plateau they were also abundant, and were to be seen in dense black masses out on the open grassy downs at all hours of the day. In fact they were so plentiful in many places that, like the zebra and hartebeest, they often proved an annoyance and hindrance to the sportsman when after other and rarer game.

On the coast they were confined to the thick bush, and only came out into the open to feed late in the evening just before sunset, and returned again at daybreak or shortly after, and it was no doubt owing to constantly forcing their way through the bush, and also to the higher temperature and moist atmosphere that they had a totally different appearance from those found farther inland at higher and much colder altitudes.

The buffaloes of the coast were almost hairless and of a dull lead-colour, whilst those in the Masai country were well covered with hair and quite black.

I remember one old solitary bull I shot at Merereni was so hairless that on first catching sight of it I mistook it for a rhinoceros. On another occasion, when on my way down from Uganda in 1890, I made a far worse mistake and thereby lost a grand trophy, as I again mistook an old single bull buffalo, standing out in the open plains, for a rhinoceros, and as meat was badly wanted for the caravan, and both Dr. Mackinnon and myself were unwell and did not feel quite equal to going after it, I sent one of the headmen, who not only killed it but afterwards brought in the finest head I have ever seen, with a spread of 44 inches inside measurement, very thick and massive. The beast was covered from head to foot with a thick layer of dry mud, which gave it at a distance the exact appearance of a rhinoceros. This head is, I believe, still in the possession of Sir Francis de Winton.

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The buffaloes found on the Mau plateau, where it is much colder than the Masai country, were still more thickly coated with black hair, one old bull, killed at an elevation of 8000 feet, having large tufts on its face almost as shaggy as a wildebeest.

In size they never varied much in different localities, an average bull standing 5 feet at the shoulder, and measuring 10 feet 6 inches in length, including the tail, which is 2 feet 6 inches.¹ The horns, however, as indeed with most other game, varied a good deal locally. On the coast and in the Kilimanjaro district the great majority of the heads were wider in the palm in proportion to the spread, whilst those found farther north towards Lake Baringo had a very much wider spread in comparison with the width of palm.

It is of course purely a matter of opinion as to which is the finer trophy—a thick massive head, or one with a wide sweeping spread.

In 1890 rinderpest appeared amongst the native cattle, and unfortunately spread amongst the buffaloes so rapidly that by the end of April they were literally decimated, and there are now very few left. There are still two small herds whose habitat is fortunately within the limited area of the Game Reserve in the Kikuyu district, so there is now a chance of this grand beast being saved from extermination. There are also in the Mau district three or four other small herds, which, however, confine themselves so closely to the dense undergrowth in the forest that they are practically unapproachable even to the Wanderobbo hunters, who can creep about in such places with far less noise than is possible for an European.

Since they are now so scarce and are no longer found in the plains and comparatively open bush as formerly, but confine themselves to the thickest jungle, from which they only emerge late in the evenings to feed, it is

¹ All my measurements were taken as this beast lay on its side, stretched to its full length, between two ramrods, one at the nose, the other at the end of the tail. They did not, however, include the tuft of hair.

more than ever incumbent on the sportsman to do his utmost to be on their feeding-ground in good time and endeavour to catch them out in the open. He can then make a certainty of picking out a bull; whereas if he has to follow a herd into dense bush he is quite as likely as not to shoot a cow, as on sighting a beast, probably at only a few yards' distance, he will have very little or no time at all to examine it sufficiently to determine what it is, bull or cow, unless of course he can get a good view of its head.

With regard to the character and temperament of the buffalo opinions differ. Personally I consider it the pluckiest and, when wounded, the most cunning and savage of all the game that is considered "dangerous." Out in the open, when a deliberate and steady shot can be taken, and the bullet placed in the right spot, there is little to fear, and it may be killed with a small-bore rifle, but, once let it get into thick bush or long grass, a wounded buffalo is the most ticklish beast of all to deal with, and as trying to the nerves as the keenest sportsman can well desire. In such a situation I strongly recommend the hunter to use nothing less than an 8-bore.

The cows drop their calves between December and February.

F. J. JACKSON.

IN PORTUGUESE WEST AFRICA (BENGUELA)

BENGUELA NAME, *Inyati*

These animals are to be found in large numbers throughout the district of Benguela—latitude 12° south. In this district is also found the beast known as the West African buffalo; the only difference that I can see between the two animals is in the shape of the horns, which in the West African buffalo are very narrow at the base, longer and more curving

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than in the other ; their habits are identical. Buffalo feed mostly during the night, retiring, as soon as the sun begins to give forth his heat, to the thick bush along the river beds ; very often, however, they select an elevated piece of ground, where they can derive the full benefit of a cool breeze. They are generally accompanied by the tick birds, which fly up on the approach of the hunter and give warning, when away go the buffaloes with heads down and tails up. The way they get through the thick bush, which is a network of stout, rope-like creepers, thicker than one's arm, is marvellous. The buffalo is a very thick-set animal, rather short in the body for his bulk, and standing somewhat low on the legs. His strength must be prodigious. The gait of these beasts is a heavy, lumbering gallop, and although they do not appear to be going fast it is wonderful the amount of ground they can cover in a very short space of time. Old bulls one generally finds with large bare white patches on their bodies, having rubbed off all the hair. An old buffalo bull's head makes rather a grim trophy ; still it is one that is well worth pursuing, although the operation of skinning will try the patience of the hunter to the utmost. A buffalo has a thick, heavy hide, and when fat the coat is very black and shining. I have shot a good many buffaloes lately, but I have never succeeded in driving a bullet clean through an old bull, with either a Martini-Henry or .577 rifle ; the missiles were all stopped by the skin on the opposite side, which gives somewhat to the bullet.

In 1897 I found buffaloes in very large troops on the Coporole, Nimbo, and Kuvali Rivers, where the bush is very dense, and one has frequently to shoot these animals at very close quarters. With ordinary care, however, there is really very little danger ; the chief risk, when finding them in large troops in thick bush, lies in the buffaloes mistaking the direction of the shot, which is very difficult to locate. I have, on one or two occasions, had to stand as close as I could squeeze to a friendly tree-trunk to escape being knocked down by them. Buffalo have poor eyesight, but

are very sharp of hearing. Their weight is difficult to estimate, but they carry a large amount of flesh ; the ribs overlap each other and are very thin, but as strong as if made of steel.

The native hunters, although they do not shoot many buffalo, chase them about a good deal, which causes them to be continually on the move. I may give an instance of this. I arrived with my waggon early one morning on the Coporole River, within two days' journey of the coast, and, as I wanted some fresh meat, took a turn up the river. I had not gone very far before I found the ground covered with fresh buffalo spoor. I followed the tracks down to the river, where I found the buffaloes had just been drinking ; the water, which had evidently run out of their mouths, was still lying on the ground. I had not proceeded more than a few hundred yards, when I heard the beasts grunting. Their spoor was everywhere, so I walked straight ahead along one of their paths ; the veldt was chiefly mimosa trees. I presently found myself in the midst of the buffaloes. I could hear the bush crackling all around, but could see nothing ; presently, on my left, I saw about seven buffaloes. The ground was very uneven and I could only see their backs, but one was standing almost facing me, and on higher ground than the others. I fired for the animal's chest ; in the bad light of the thick bush I thought it was a bull. There was at once a grand commotion all around, but fortunately none of the buffalo came my way. I followed the spoor of the troop I had fired at, but, without knowing it, I passed, quite close to theirs, on other spoor. After a time, not finding any blood on the trail, I came to the conclusion that I must have passed my troop. I now returned to take up the spoor again, and presently sighted the buffaloes, all standing clustered together. On peeping through the bush I found they were gathered round the buffalo I had shot, which was lying dead. They very soon saw me and galloped off. I let them go, not wanting more meat. On inspection, I found that I had shot a fat cow instead of a bull. The day after this hunt

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there was not a single buffalo within miles; they had all trekked away. I had only fired the one shot, but it had had the effect of clearing the veldt. I found this same peculiarity among the buffaloes in all the country frequented by native hunters.

G. W. PENRICE.

THE ABYSSINIAN BUFFALO (*Bos caffer æquinoctialis*)

The Abyssinian race is by far the most closely connected among other African buffaloes with the true *Bos caffer typicus*. It is in fact so nearly



FIG. 16.—Skull and horns of Abyssinian Buffalo.

allied that it has been doubted whether it is more than a variety of the more southern form. The body-colour is dark brown, tinged here and there with a ruddier shade. The horns are smaller, much more flattened towards the base, and have a thinner and less massive appearance than those of the Cape buffalo.

This buffalo is found in Abyssinia, the southern portions of Somaliland, and parts of the Eastern Soudan up to the White Nile. In habits it resembles its southern congener, and is, when wounded, fierce, active, and revengeful. In stature it averages about a foot less than the Cape

buffalo, a good specimen measuring about 4 feet at the shoulder. The largest known pair of horns—in the possession of Mr. E. Lort Phillips—measure 40 inches over the outer curve, have an inside width of 37 inches, a spread from tip to tip of 32 inches, and extend to $11\frac{7}{8}$ inches in width of palm. These were procured from Abyssinia.

H. A. BRYDEN.

THE SENEGAMBIAN BUFFALO (*Bos caffer planiceros*)

Naturalists, despite the differences in size, coloration, and shape of horns, trace a distinct affinity between the great buffalo of South, East, and



FIG. 17.—Frontlet and horns of aged male Senegambian Buffalo.
From the type specimen in the British Museum.

Central Africa (*Bos caffer typicus*), and the buffaloes of Abyssinia, Senegambia, Lake Tchad, and the Congo. The buffalo of Senegambia stands midway between the dark Cape buffalo and the small reddish buffalo of the Congo. It is of a dark brown colour; the horns are short, blunt, and fairly thick in the old males, recurved, and somewhat laterally expanded. From this last characteristic this buffalo has been christened by scientists *B. caffer planiceros*. Little is known of this, as of other animals of the Gambia

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country. A fine pair of horns, those of an old male, are to be seen in the Natural History Museum. Their measurements are—length on outside curve, $13\frac{2}{3}$ inches ; circumference, $10\frac{1}{4}$ inches ; from tip to tip, $28\frac{1}{2}$ inches.

H. A. BRYDEN.

CONGO OR DWARF BUFFALO (*Bos caffer nanus*)

HAUSA NAME, *Bona* ; YORUBA, *Effon* ; IGARA, *Effa* ; IGBIRA, *Aya*

The dwarf buffalo, or, as it is more generally known in West Africa, the "bushcow," resembles in general appearance an Alderney cow in miniature. When seen in a herd feeding, on the move, or scampering off with their tails in the air, one invariably thinks of the small Channel Island cattle so frequently seen at home. Standing well under 4 feet at the shoulder, they are compact little beasts, with clean outlines, clean legs, and totally devoid of the heavy look of the Cape buffalo.

Their colour varies from the light red of the younger animal, deepening through the warm rufous red of the mature beast, to the deep dirty brown of the aged bull. The hair is short, and lies evenly on the skin throughout, and until old age, is apparently clean and remarkably free from parasites of any kind. As old age creeps on, the hair wears off the folds of the neck, which become more marked, off the shoulders and quarters, and deepens into a dark dirty brown easily discernible in the herd even at a distance. The difference between bull and cow, both horned, is but slight, and lies chiefly in the bull possessing somewhat longer hair and in greater depth of barrel ; but even the bull retains the characteristic lightness of the breed.

The following measurements may be taken as average measurements of a cow :—

Height at withers	.	.	.	44 inches.
" croup	.	.	.	46 "
Girth immediately behind fore-leg	.	.	.	$60\frac{1}{2}$ "

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Girth of fore-leg below elbow	19½ inches.
Length from withers to root of tail	42½ "
„ „ between horns	17½ "
„ between horns to tip of nose	17½ "
Total length along line laid on back from tip of nose to root of tail	78 "
Tail, total length	19½ "
„ tuft only	3½ "
Horns, outside curve	12½ "
„ between tips	11 "
„ between palms	4½ "

The following are the measurements of an old bull's horns :—

Outside curve	19½ inches.
Inside „	15½ "
Tip to tip	15 "
Width of palm	7½ "

The horns, flat in front, curve outwards from the head, and, almost immediately bending upwards, become two perpendicular and usually parallel points, which in youth and early maturity are often extremely sharp. As the age increases, the space between the horns on the forehead decreases, but so far as my experience goes, the palms never actually meet.

The horns are much prized by natives of West Africa for fetish ceremonies, whereat they are used for blowing the most hideous calls.

The range of the dwarf buffalo extends along the West Coast of Africa from Senegambia to Benguela, roughly from 15° N. to 15° S. latitude, and extends throughout the basins of the Senegal, Gambia, and Niger, the hinterland of the Cameroons, and perhaps penetrates most deeply into the continent along the French and Belgian Congo Rivers. Throughout this extent of country there are districts where it is not to be found, but they are limited both in extent and frequency. It is, however, nowhere very common, and unless they are to be found in the Congo wilds, large herds are unknown.

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As regards the character of the country most frequently affected by this buffalo, there exist curiously contradictory theories upon the subject. In my earlier years in West Africa I was given to understand by Europeans more or less intimately acquainted with the country that it was in the thick dense bush of the big waterways, and in the thick forest belt which extends parallel with the sea throughout the west coast to a depth of 100 miles from the sea, that I should find this animal. Others said that it was in the more open bush, 150 to 500 miles from the sea, that I should come across it. My



FIG. 16.—Skull and Horns of Congo Buffalo; from Major A. J. Arnold's specimen.

own experience certainly tends towards the latter theory. The horns of the species are to be found much more frequently amongst the natives of the open bush country than amongst those inhabiting the dense forest belt, though it is not absolutely unknown in that belt. Again, as one penetrates toward the Sahara, and open plains take the place of light bush, it apparently disappears. So, on the whole, I am inclined to lay down that it prefers a light open bush country, well watered and with consequent small belts of thick bush in which it can lie up in the

daytime. The belt of forest beside the waterways may be replaced by the thick dense bush of the big gullies of the plateau-topped hills of Nigeria.

These buffaloes are as a rule solitary in their habits, and, in pairs, with perhaps a calf, live their lives much alone. Recently, however, near Lokoya, in Nigeria, at the junction of the Niger and the Benue Rivers, I came across a herd of twenty with which I came up after tracking it for two hours. Up to that time the only tracks I had seen were of solitary animals or of pairs. They appear to water just before dawn, and then feed slowly either uphill towards the dense shady bush in the hillside gullies, or through the

open scattered bush to some other gully, in the deep recesses of which they lie up for the remainder of the day. With the exception of one which I kicked up from under the shade of a big cottonwood tree, I have never seen one, nor have I seen fresh tracks of any, in the afternoon or evening, though it cannot be therefore argued as a certainty that they do not wander at all at that hour of the day.

Throughout West Africa the "bushcow" has a great reputation for ferocity, a reputation which I believe to be due more to the imagination of the native than to any real danger which is incurred in hunting these animals. The bull referred to above as being kicked up late in the day, and upon which I almost stepped, bolted at once, although it had a calf with it at the time. I may have startled it too considerably to admit of its doing anything else. It, however, pulled up within 200 yards, and, standing broadside on, turned its head towards me as I sprinted after it, and very possibly its halt denoted a change of tactics and a charge, when a bullet planted an inch above the heart sent it flying at full gallop straight away from me. The beast charged straight through a bush fire which was licking up the dried grass 200 or 300 yards farther on, and travelled altogether $1\frac{1}{4}$ miles before it rolled over in a patch of dense palm jungle by the side of a steep dried-up nullah. The calf, which was by its side when kicked up, was about half grown, and, curiously enough, no sign of a cow was to be seen in the neighbourhood. She may have been bagged by a native hunter a few days previously, but I think I should have heard of it had it been so.

The slaying of a "bona" by the native is considered a great feat, men occasionally being met with who are known solely as "bushcow killers." The mysterious ways of the creature, and the consequent difficulty of ever getting sight of one or bagging one, have rendered it almost a fetish in the eyes of the native. When a man kills a bull he must retire into his house and remain there for ten days at the least, whilst all his relatives make "ju-ju"

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or sacrifices to the spirit of the deceased bull ; whereupon it is propitiated and endues its slayer with its own reputed qualities of fierceness and cunning. Should the hunter or his relatives be remiss in these devotions, the spirit of the bushcow enters into the hunter to his destruction, for he goes raging mad and dies.

I remember one being shot by an officer just before he was seized with an attack of malarial fever, so severe as to cause him to be invalided home ; whereupon all the natives unanimously concluded that he had gone mad, and been sent home to die, and argued from it that even the powerful white man could not slay a "man" bushcow with impunity.

The hunting of the animal is attended with difficulty. It is shy and retiring, and when feeding out in the open travels at a great pace. Perhaps the soundest method is to frequent a waterside, not of the big rivers, but of one of the smaller streams, as soon as daylight permits of tracks being discerned, morning after morning, until the fresh spoor of one that has recently watered is met with. The tracks must then be followed up rapidly, and yet with caution, in the hopes of coming up with the beast before it reaches the denser bush, wherein it is nearly impossible for the most experienced of trackers to keep steadily on the spoor. Great caution is required, for the bushcow is very quick of hearing and of acute scenting powers. Again, when one does come up with them, or it, and the shot is planted, the game is very far from being brought to bag. They are very tenacious of life, and will travel long distances with a quantity of lead in them. The skin, on an average $\frac{3}{8}$ inch in thickness, presents no great difficulty to a bullet, and I have put a hollow-pointed Paradox bullet into a bull broadside on, which only stopped just under the skin on the farther side. But shot after shot may be put in before the beast comes to its knees, and, when down, it is a long time in dying, even when hit in a usually vital region.

For these reasons a bushcow head will always be a rare trophy, and the

deeper will be the sense of satisfaction with which the sportsman views one lying at his feet.

A. J. ARNOLD.

LAKE TCHAD BUFFALO (*Bos caffer brachyceros*)

Almost nothing is at present known of the habits of this buffalo. It is another of the links between the Cape and Abyssinian races. It was originally discovered by Denham and Clapperton, in the first half of this century, during their Niger explorations, and skulls with horns brought home by those enterprising travellers are to be seen in the Natural History Museum. One pair of horns measure as follows :—length on outside curve, $18\frac{1}{4}$ inches ; circumference, $10\frac{3}{4}$ inches ; from tip to tip, $5\frac{1}{2}$ inches.

H. A. BRYDEN.

THE SHEEP

Genus OVIS

As the oxen form one sub-family (*Bovinae*) of the hollow-horned ruminants, so the sheep and goats, both of which are very poorly represented in Africa, constitute a second (*Caprinae*). From the *Bovinae* the members of this latter group are distinguished by the hairy muzzle, the form of the horns, which are generally small, or even wanting in the females, the higher carriage of the head, the presence of only two teats in the female, and, above all, by the structure of the cheek-teeth. In the upper jaw these teeth, although tall, have much narrower crowns than those of the oxen, and the number of isolated areas of ivory exposed on their grinding-surfaces is one less in each tooth. The horns of goats and sheep are always more or less angulated, are frequently knotted or strongly wrinkled, and generally form either an open or a screw-like spiral. The two genera are very closely allied, and as they have so few African

representatives, it will be unnecessary to indicate all their points of distinction here. The only African species of *Ovis* is the arui, udad, or North African sheep (*Ovis lervia*), which is a very aberrant member of its genus, characterised by the long hair on the fore-quarters, the comparatively smooth horns, which are larger in the females than usual, the great relative length of the tail, and the uniform coloration.

THE ARUI, AUDAD, OR BARBARY SHEEP (*Ovis lervia*)

This, the only species of wild sheep indigenous to Africa, is known as the Arui in Southern Algeria, as Ūdad or Audad in Eastern Algeria and Southern Tunis, and as Wadan in Tripoli and Fezzan. It possibly has other native names in the south of Morocco and on the borders of Egypt. In Tunis it is universally known as the Ūdad. The name usually found in natural histories—Aoudad—may possibly represent the pronunciation expressed in French spelling given to the name in Eastern Algeria. The adult males occasionally measure 3 feet 6 inches at the shoulder, and have the bulk of a small ox. In general appearance the animal strikingly recalls



FIG. 19.—Head of male Arui or Audad.

the large Hemitragines of the type of the *Tahr*, and it is not impossible that it may have branched off from that stock direct, and only present superficial resemblances to the sheep. In colour males, females, and young are uniform reddish-gray—a reddish-gray tinged with yellow.

In the male there is a great growth of hair, beginning just under the jaw bones, and continuing along the under side of the neck to the chest. Great tufts of long hair are also developed on the outer surface of the fore-legs above the knee. The tail is rather long, and the lower part is fringed with long hairs. The shoulders are higher than the hind-quarters, so that the body has rather a sloping line. The face is long and sheep-like; the horns are but very faintly annulated. The annulations almost disappear in the



FIG. 20.—Arui or Audad (*Ovis lervia*), from a drawing by Sir H. H. Johnston.

adult male, the horns becoming nearly smooth. They seldom exceed 25 inches in length, measured round the curve.¹ Starting from above the eyes, the horns curve backwards and slightly downwards. They are absolutely without the forward turn towards the tips which is so characteristic of most sheep. Like the bharal (*Ovis nahura*) of Tibet, they are

¹ The longest recorded pair of horns—in the possession of V. Cholmondeley, Esq.—measure 29½ inches over the curve. See *Records of Big Game*.—Ed.

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said to refuse to breed with domestic sheep. This is, however, sufficiently accounted for by the great difference in size.

I cannot obtain any satisfactory information as to the existence and range of this wild sheep in Morocco, but it is found more or less sparsely in all the mountain ranges of Southern Algeria. It is also found fairly abundantly in the mountains of Southern Tunis. It is met with on high ground in the interior of Tripoli, and is reported to exist in most mountainous districts of the Sahara Desert, and specimens have been obtained as far east as Nubia. Its range would therefore seem to extend from the Atlantic almost to the mountain country bordering the Nile, if not to the Red Sea. It is emphatically a desert animal, and, so far as I know, is not found in the well-forested mountains of North Africa, preferring the absolutely treeless table-mountains of the Sahara Desert.

In Tunis the Audad is stalked on foot. It allows the sportsman to approach somewhat closely, as it is very confident of its own invisibility. As the colour of its pelt is exactly the reddish-yellowish-gray of the barren mountains, and its horns, eyes, and hoofs are of much the same tint as the fur, it is well-nigh invisible except to the practised eyes of the Arabs. When alarmed, however, its speed and powers of jumping are considerable. On flat ground it can gallop away with tremendous bounds, looking as it does so like a heavily-built antelope. The Audad is generally found in small companies, which seem to consist of an old ram and ewe and their descendants of various sizes and ages.

H. H. JOHNSTON.

THE WILD GOATS, OR IBEX

Genus CAPRA

The most obvious distinction between the goats and sheep—and especially between their more typical representatives—is the presence of

a beard on the chins of the males of the former, and the strong odour exhaled by that sex. The two African wild goats are the Arabian and the Abyssinian ibex (*Capra nubiana* and *C. vali*), both of which resemble other true ibex in the bold knots on the front surface of the scimitar-like horns of the males. The former is specially distinguished by the comparative narrowness of this front surface, but the latter is still very imperfectly known.

THE ARABIAN IBEX (*Capra nubiana*)

This species, which is a true ibex, standing about 33 inches at the shoulder, may be at once distinguished from either the European or the Asiatic species by the relatively long and slender horns of the bucks, in which the front surface is very narrow and the outer front angle bevelled off.

The female is an insignificant little animal with small, flattish horns about 5 or 6 inches in length. With the exception of the Nilghiri wild goat (*Hemitragus hylocrius*), this ibex carries the lightest pair of horns of any of the goats, for, although these assume very fair dimensions, they are small in circumference. I was particularly struck with their near resemblance to *C. ægragus*, especially in the narrow frontal surface and irregularity of the knobs, although these features are not carried to the same extent. This suggests that the two species must formerly have come into contact by way of the plateau of Syria and the Lebanon Mountains, which connects this peninsula and the continent of Asia Minor.

The next question is whether the Arabian *C. sinaitica* is identical with the African *C. nubiana*. In my opinion this is the case. The typical *C. nubiana*—from the districts on the west side of the Red Sea—grows horns of greater length and circumference, this being apparently due to better and more regular feeding.¹ On the other hand, in the stony

¹ The best recorded pair of horns of this ibex, shot in North Africa, are in the British Museum. They measure $46\frac{1}{2}$ inches over the front curve.—Ed.

district of the Sinaitic peninsula, living is precarious, owing to the uncertain rainfall, there being frequently no rain sufficient to do any appreciable good to vegetation for two or three years. This, I submit, accounts for the extraordinary irregularity of the knobs on the horns of the so-called *C. sinaitica*, which may be attributed to poor and uncertain

feeding. The rutting season commences in September, and lasts for two or three weeks. After that period the big males appear to leave the bands and retire to their mountain fastnesses, since they are then very difficult to find. Should, however, rain fall, and especially if accompanied by thunder, the old bucks at once reappear, traversing the country in search of the does, and are again to be found with the bands during October and November.

From November to January their coats are in their best condition, after that period the colour becoming lighter and the hair beginning to be shed.



FIG. 21.—Head of Arabian Ibex, from the Sinaitic Peninsula.

Owing to the fear of leopards, which prey upon them to a great extent, these ibex do not appear to sleep much during the night. As a rule, they lie down at about nine o'clock in the morning for an hour or two, and again during the mid-day heat, one female being of course on guard, and she—the watching female—being very difficult to circumvent. Their sense of smell and hearing are very acute. At the first shot they are off; and,

FIELD
MUSEUM



PLATE IV

- | | |
|------------------------------------|-------------------------------|
| 1. Bubal Hartebeest Head. | 5. Swayne's Hartebeest Head. |
| 2. West African Hartebeest Head. | 6. Coke's Hartebeest Head. |
| 3. Tora Hartebeest Head. | 7. Cape Hartebeest Head. |
| 4. Neumann's Hartebeest Head. | 8. Jackson's Hartebeest Head. |
| 9. Lichtenstein's Hartebeest Head. | |



unlike what is so often the case with other species of wild goats, they but seldom offer a second chance.

The name of the species among the Bedouins of the peninsula of Sinai is *bedan*; but they are also termed merely "game," being, *par excellence*, the game animals of the country.

Distribution.—"The mountains of Southern Arabia, the Sinaitic Peninsula, Upper Egypt, and thence apparently into those of Morocco and the interior of Senegambia."

JOHN MARRIOTT.

THE ABYSSINIAN IBEX (*Capra vali*)

Of this ibex very little is at present known. The Hon. Walter Rothschild has a head in his museum, the measurements of which are as follows:—length on front curve, $25\frac{1}{2}$ inches; circumference at base, $7\frac{1}{4}$ inches; from tip to tip, 13 inches. This wild goat appears to be closely related to the preceding species (*C. nubiana*), but the head is distinguished by a prominent frontal development of the bone. Its habitat lies in the mountains of Abyssinia.

H. A. BRYDEN.

THE HARTEBEESTS

Genus BUBALIS

In spite of its general use, scarcely any name is less easy of definition than the title "antelope," which is applied to almost any hollow-horned ruminant not coming under the designation of an ox, a sheep, or a goat. Being far too useful and generally accepted to be discarded, it must be remembered that when this term antelope is used, it is employed in a very general, and not in a strictly zoological sense. That is to say, antelopes do not form a single sub-family of the hollow-horned ruminants of equivalent rank to the *Bovinae* or the *Caprinae*; but rather include a

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number of such sub-families, each standing on the same platform as the two latter.

The first of such sub-family groups is constituted by the hartebeests, bastard hartebeests, and gnus, and is technically known as the *Bubalidinae*. The members of this group are all more or less ungainly-looking ruminants of comparatively large size, with naked muzzles, minute glands in the face below the eyes, and large valved nostrils, of which the lower lids are covered with a number of short bristly hairs. They have long tufted, or hairy tails, and large lateral hoofs. There are no tufts of long hair on the knees, and the teats of the female may be either two or four. From the presence of horns in both sexes, the comparatively large size of those of the females, and the shape of those of the gnus, it might be inferred that the antelopes of this group are near relatives of the oxen. This, however, is negatived by the conformation of their cheek-teeth, which in the upper jaw have tall and very narrow crowns, more like those of the sheep and goats. The skull has shallow pits below the eyes for the face-glands, but no unossified spaces in this region, and no depressions on the forehead. With the exception that one of the species of hartebeest ranges from North Africa into Arabia, the entire group is restricted to Africa.

From the other two genera the true hartebeests are distinguished by their peculiarly elongated and melancholy-looking faces, maneless necks, doubly-curved horns, which are more or less suddenly bent back about the middle of their length, and heavily ringed, and the undue height of the withers and the lowness of the hind-quarters. They have the muzzle moderately broad, the nostrils close together and lined with stiff bristles, small hoofs, and the tail, which reaches below the hocks, moderately haired and generally with a thin crest of longer hairs along the upper surface of the terminal half. The udder of the female has but two teats. In colour hartebeests may be either uniformly brown or rufous, or similarly

coloured with the addition of blackish or purplish patches on the face, shoulders, hind-quarters, and lower portions of the limbs. The horns first rise outwards or backwards, then curve forwards and upwards, and are finally bent suddenly backwards and upwards. Eight species of hartebeest are known; and these may be arranged in four groups, according to the form of the horns and the development of the upward prolongation (pedicle) of the forehead on which they are mounted.

A. Horns U-shaped from in front, with a short pedicle.

1. Bubal Hartebeest (*Bubalis boselaphus*).
2. W. African Hartebeest (*B. maior*).

B. Horns like an inverted bracket (⌒), with a moderate pedicle.

3. Tora Hartebeest (*B. tora*).
 - a. Typical race (*B. tora typica*).
 - b. Neumann's race (*B. tora neumanni*).
4. Swayne's Hartebeest (*B. swaynei*).
5. Coke's ,, (*B. cokei*).

C. Horns V-shaped from in front, with a very high pedicle.

6. Cape Hartebeest (*B. cama*).
7. Jackson's ,, (*B. jacksoni*).

D. Horns greatly incurved before the final backward turn, with a low and wide pedicle.

8. Lichtenstein's Hartebeest (*B. lichtensteini*).

BUBAL HARTEBEEST (*Bubalis boselaphus*)

TUAREG NAME, *Kargum*; ARAB (ALGERIAN) NAME, *Begra el Ouach*

This hartebeest is very closely allied to the following species—the West African hartebeest, fully described by Major Arnold and Dr. Rendall—and its habits are very similar. It may, indeed, well be doubted whether any practical difference, beyond mere local variation, exists

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between the two races. It is the smallest of the group and stands no more than from 43 to 45 inches at the shoulder. The general colouring is a grayish-brown. Few specimens of horns are known in this country. The best recorded pair seem to be those in the Natural History Museum, which measure $14\frac{1}{2}$ inches over the outer curve. The habitat of the bubal hartebeest is the remoter parts of Tunisia, Algeria, and Morocco. It is found also in Arabia, and was described by Canon Tristram as certainly existing "on the borders of Gilead and Moab."

H. A. BRYDEN.

WEST AFRICAN HARTEBEEST (*Bubalis major*)

"Body of a uniform grayish-brown; face deep brown; fore-legs streaked with dark brown or blackish from the knees downwards.¹ Terminal tuft of tail black. Frontal bone between the base of the horns and orbit convex, whilst in other species the same part is remarkably flat."²

Facial length, $7\frac{1}{2}$ inches; muzzle to orbit, 13 inches; breadth of forehead, 4.4 inches.

Horns diverging from each other at an even rounded curve, so as to form together a U when viewed from the front; this character, besides, only exists in *B. boselaphus*.

Horns have been procured measuring up to $25\frac{1}{2}$ inches over the outer curve; the annulation is very prominent on the anterior surface. Height at shoulder, about 45 inches. There are no complete specimens of this antelope, but Messrs. Sclater and Thomas state that Edward Blyth, writing to the Zoological Society in 1869, pointed out the above-mentioned specific differences, which he said he had noted from a perfect skin.

He was of opinion that some mounted specimens he saw in the Museums of Leyden and Amsterdam belonged to this larger form, though labelled *B. boselaphus*.

¹ See Major Arnold's remarks as to variations in colour in the following article.—Ed.

² Brooke M.S., quoted in *The Book of Antelopes*, by Messrs. P. L. Sclater and Oldfield Thomas.

When I was stationed on the Gambia River in 1889 I procured three pairs of horns on frontlets of this species from the native trader who shot them, more than 150 miles up this great waterway. The largest of these measures nearly 20 inches in length, but they have a pair 23 inches in the Berlin Museum.

These animals inhabit suitable districts in Western Africa from Senegal to the Cameroons. Col. F. D. Lugard shot them at Lokoja on the Niger, whence also the late Dr. Higgs sent home a head and neck trophy.

PERCY RENDALL.

WEST AFRICAN HARTEBEEST (*Bubalis major*)

HAUSA NAME, *Kanki*; YORUBA, *Ēlē*; IGARA, *Orcha*

With the exception of the kob antelope, the West African hartebeest is perhaps the commonest of antelopes from Senegal to the Congo.

With its curiously sloping quarters, its long neck, and longer head, it is, at rest and in its slower paces, an ungainly, if not an absolutely ugly animal; but at top speed, when stretched out by fear, it has an easy, graceful motion which is distinctly unique, and which redeems it in the eyes of the lover of the beautiful.

The adult animal, male or female, is of a light sandy-red colour, varying considerably in depth of tone according to the nature of the country it inhabits. At one time I was inclined to believe that the colour of its coat varied during the year, but later experiences told against any such theory. The lighter tone, which is almost a fawn-gray, was found in one shot within ten days of the shooting of one of quite the darkest, almost a deep red tone, and as there was a distance of 500 miles between the places where they were shot and the general characteristics of the country were opposed, I could only account for the difference of shade on the theory that nature adapts the colour to the environment. But age has also an effect, as the

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young are invariably of the very light tone, deepening in maturity to the redder colour, and again lightening towards old age. The light in which the antelope is seen has also much to do with its apparent colour; I have come across a hartebeest against the sun which in its depth of tone made me think I had met with a rare specimen, but which, when shot, and viewed lying upon the ground, was of the average sandy-red.

The West African hartebeest stands about 44 to 46 inches at the withers, and has a strange topheavy appearance when at rest. Its face, from between the horns to the tip of the nose, is very elongated, perhaps the most elongated of all the hartebeests. The fall-away to the quarters is considerable, so considerable that the animal only needs to extend its hind feet to the rear a little to produce an almost straight line from withers to heel. It carries its head well forward rather than up, but as a rule its chin is withdrawn towards its chest, bringing the horns rather to the front of a perpendicular line dropped through the centre of the profile of the head.

The horns are not large, ranging from 16 to 25½ inches, but of an average 18 to 19 inches, the bull's being always heavier and more often irregular than those of the cow. The latter, lighter and with less circumference at the base, are usually very regular, the right rarely differing from the left in any essential of angle, cast off, or length, and forming altogether a very pretty trophy in themselves. Evenly ringed from the base for a little over two-thirds of their length, the deepest indentations are in the prominent front angle and to the front of the horn. The upper third is straight and fines off to a very sharp point.

The *Bubalis major* is to be found in the hinterland of all the west coast from the Senegal to the Equator, and frequents chiefly the belt of light bush which intervenes between the dense tropical forest of the coast and the desert lands of the Sahara. It is unknown in the dense belt, and also appears to abjure the more open countries on the far side of the light bush

country. In this belt it is frequently met with, and even there it appears to prefer the scrub to any open spaces which may occur at intervals in the locality. On and near the River Niger it is plentiful between Boussa and Idah, between which places the country, more or less hilly in nature, is covered with the light tree-scrub of the "*Bassia Parki*" and similar trees. On the River Benue it is not found on the big stretches of open grasslands which are a feature of that river; but wherever the land rises and becomes covered with a bush similar to that of the Niger the *Bubalis major* is almost invariably to be found.

It wanders about in herds of from half a dozen to a score, rarely exceeding the latter number. Pairs are seldom met with, though single bulls are occasionally seen well away from any herd. The young bulls appear to take to a solitary life when approaching maturity, probably before their strength is sufficient to entitle them to and enable them to maintain a sire's position in the herd. Old bulls likewise appear to be turned out of the herd, and are met wandering in lonely condition. If the stories of natives are to be believed, and they are corroborated by the common recurrence of arenas wherein exist signs of fierce struggles, the bull hartebeest is constantly called upon to maintain at the point of the horn his position in the herd.

The West African hartebeest is a curious mixture of sharp wits and stupidity. Very keen of scent and also quick of sight, it may at times be quite easily deceived, and, even when thoroughly alarmed, it frequently fairly blunders to its death. After a considerable experience in hunting them, it is quite impossible to lay down with any degree of certainty the probable behaviour of a herd upon its being alarmed. I have more than once come suddenly upon a single beast within 50 yards, and, by at once assuming an absolute rigidity of attitude, without moving so much as an eyelash, its suspicions have been dulled and it has proceeded quietly with its feeding. At other times a glimpse of the hunter is sufficient to send

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a herd away at full speed, and it is little but a glimpse that the sportsman then gets of them. I am inclined to assert that this animal's powers of scent are stronger and more relied upon than its sight, for in the instances in which it has been deceived into quietude whilst the hunter remained in full view, the wind has been noted as blowing direct from the beast to the hunter, whereas with a cross wind or in a hilly corner, where cross and circling currents of air may occur, it takes alarm and hurries off at once. Again, it is a common habit of this hartebeest, when met by a man going up wind, to bolt off to either hand, and then break back behind its pursuer; and I have at times brought down a good head by counting upon this and sprinting for all I was worth on my back tracks, thereby getting a running shot as the game broke back behind me. Herding together, West African hartebeests lie up for the night, as a rule, in small open spaces, if possible well away from any patches of grass or bush. Rising soon after daylight, they feed slowly and quietly away, but not with much idea of watering. Water-holes rarely show many hartebeest tracks, and the general tendency of evidence goes to prove that they need very little water to sustain life. Their feeding is ended early, and by 9 or 10 A.M. they are mostly lying up under trees or standing about in the shade with drooping heads, idly flicking the flies away from them. They are more easily approached at this hour, particularly if the sportsman has discerned them in time and can plan his stalk with reference to the wind. A herd with young is the most difficult to get at, as the young do not appear to doze as do the adults in the hot hours; and, capering and gambolling about, never farther than 50 yards away from their parents, they form a vigilant guard, which has many times spoilt my chance of a good head.

The young are dropped between Christmas and the middle of February, and are strong and fleet almost immediately after birth.

The pace of the West African hartebeest when at full speed exceeds that of any other antelope in West Africa. At a trot or canter it is

exceedingly ungainly, but even at the latter gait it can easily outpace a man mounted upon the best native pony. But, when thoroughly alarmed, it stretches itself out close to the ground, and for a mile can maintain a really tremendous speed. Its movements are so deceptive that unless one has galloped alongside or behind it, or watched it make a given distance, one could never realise the speed to which it can attain. I have sprinted a fine pony alongside one for some 400 yards. When at its quiet, ugly canter it easily kept drawing away, until, becoming more alarmed, it laid itself out, got its head well down, and simply sailed out of sight. On another occasion I spent an hour watching from the top of a steep precipitous hill of 900 feet in height the behaviour of a solitary bull directly below me. My glasses were good, and I could discern every movement. It browsed around a small open space, halted and scratched itself, remained motionless, just twitching its ears for ten minutes at a time, and fed on again, until, after an hour's pottering about within a circle of a couple of hundred yards or so, it suddenly started off, first at a canter, then at a gallop, and the distance it covered in a few seconds was almost incredible. The country and the line it took was very familiar to me, and when I saw it disappearing over the shoulder of a hillock, which I knew to be a good 2000 yards away, I could scarcely believe that it was the same animal that had but a few seconds before been feeding so serenely so many feet below me.

Besides its fleetness, a quality which tends to reduce bags is the extreme tenacity of life shown by this hartebeest. Sometimes it appears quite impossible to drop the beast, and one gets quite sick with one's self at the amount of lead it occasionally receives before it will give up the battle for life. It seems to be able to stand being riddled through and through, and yet keep up the hobbling out of shot. I have tracked one with four bullets in it, and going on only three legs, for hours, catching sight of it every now and then, until sheer exhaustion has compelled me to give

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up the hope of putting an end to its misery. That same antelope was seen for weeks afterwards by natives and other men out shooting over the same ground, but no one could ever bring it to bay, in spite of the dragging of a useless leg behind it. Such experiences make one vow that one will never fire a shot unless there is an absolute certainty of bagging with a single bullet.

The flesh of the West African hartebeest is somewhat coarse, and of a decidedly strong flavour, too strong to be pleasant eating for a European, except in default of other meat. In life it has a strong odour, an odour which cannot be mistaken, and which invariably stamps a lying-up place as that of hartebeest, for several hours after the herd has left it. This odour attaches also to the flavour of the flesh, and can only be ignored by the native, who likes his meat strong.

A. J. ARNOLD.

THE TORA HARTEBEEST (*Bubalis tora typica*)

ARAB AND NUBIAN NAME, *Tétel*; ABYSSINIAN, *Tora*; TIGRE, *Tori*

There is little difference between this and the following species. The Tora is a true hartebeest, of a pale rufous-tawny colour—Sir Samuel Baker describes it as “a reddish-chestnut,” but the average colour is paler—standing about 4 feet at the withers, and carrying horns which measure as much as 21 inches over the curve. A good bull will weigh as much as 450 lbs. or a trifle more. The habits of this antelope almost precisely resemble those of the other hartebeests described hereafter. Like them it is extraordinarily fleet, possessed of wonderful staying powers, and most tenacious of life. Sir Samuel Baker was one of the first Englishmen to encounter the *Tétel*, which he first became acquainted with on the Atbara River in 1861. He mentions these hartebeests frequently in his *Nile Tributaries of Abyssinia*, and describes some exciting hunts.

The habitat of the Tora, or Tétel, may be described as Upper Nubia, Kordofan, and portions of Abyssinia.

H. A. BRYDEN.

NEUMANN'S HARTEBEEST (*Bubalis tora neumanni*)

(THE EAST AFRICAN TORA HARTEBEEST)

NDOROBO NAME, *Nginya*

Of this hartebeest, which I was so fortunate as to be the first to bring to the notice of naturalists, very little is really known yet.

It may be the same as that mentioned by the German traveller Heuglin, under the name of "Lelwel," but of which no trace can be found in any museum. A skull (said to have been obtained on the Mau plateau in the neighbourhood of the Ravine station on the Uganda road), which was brought to England some time previously to mine, but was supposed to be a hybrid, probably belongs to this form; and the specimen alluded to as a hybrid by Mr. F. J. Jackson in the "Badminton Library," which had been obtained by Mr. Gedge, must, doubtless, have been one of the same kind. I may mention, too, that in a former expedition, many years ago, I saw hartebeest in the more southerly part of the great Mau region, which I then took for *B. cokei*, but which I now believe to have been of the species under consideration. But it was not until I brought home two skulls (♂ and ♀) with scalps and a flat skin that it could be established and described. Since then, Mr. F. J. Jackson has brought to this country several complete specimens, obtained by him in the neighbourhood of the small lakes Nakuru and Elmeteita, a little north of Lake Naivasha, where he tells me he found them in small herds with a few odd individuals of *B. jacksoni* among them; and he says that he had long noticed the unusual appearance of these hartebeests and suspected them to be something new, but had never before

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been able to kill one while passing through the small district where they are here found sandwiched between the respective ranges of *B. cokei* and *P. jacksoni*.

It must apparently be a very local form, and this is probably the reason why it has not been obtained by other travellers. I met with it at the far north-eastern corner of Lake Rudolph, in one locality only, and the natives there did not seem to know of it anywhere else. I saw a small herd of cows and young with one big bull, and one or two odd bulls apart. It may or may not have been the same troop which was met with on different occasions. I came across them accidentally when hunting elephants, and recognised them as something new to me. They frequented a tract of fairly open bush country, some little distance back from the lake shore, where the ground rises gently in dry gravelly ridges covered with more or less scattered, scrubby bush.

Owing to my being laid up during most of the time that I was in the neighbourhood of the only locality where I saw this antelope, and the area being so circumscribed and not easily accessible to me while in a weak state, I was unable to study it as much as I should have liked to do. And, in fact, I considered myself very lucky to be able to obtain the specimens I brought home, for those I saw were by no means very easy to get near.

My impression was that I had impinged upon the very extreme corner of its range, and that it probably extended from there in an easterly and north-easterly direction. But the fact that not one of the two or three other travellers¹ who have visited that remote district appears to have met with it seems to point to its being extremely uncommon, and the evidence above cited as to its remarkably circumscribed occurrence in the only other certified area whence it has been recorded also shows that its distribution is very capricious and interrupted by wide intervals.

¹ Dr. Donaldson Smith, however, mentions seeing Coke's hartebeest near Lake Rudolph. As there are certainly none of these in all that country, it is probable that he mistook *Bubalis tora newmanni* for *B. cokei*.

This species is the only true hartebeest found anywhere in the region where I met with it. With the exception of the *topi*, which belongs to a different genus, there is no other hartebeest within several hundred miles. The nearest point, so far as I know, where a congener occurs is at the western base of the Lorogi Mountains, where Jackson's hartebeest has the extreme limit of its range. Coke's is still farther away, none being found north of the Jambeni Hills, nor east of the Mackenzie branch of the Tana River.



FIG. 22.—Head of Female and Skull of Male of Neumann's Hartebeest.

In general appearance, habits, action, etc., these resemble the other hartebeests, among all of which there is such a characteristic similarity. There is the same grotesquely shaped head, with rather short crooked horns, and the long face which gives them all such a quaint expression; the high withers and sloping back; and the peculiar, bouncing gait, which carries these rather ungraceful-looking creatures over the ground at such an astonishing pace. The colour resembles that of Coke's, but the beast itself is considerably larger, and its general outline is more like *Bubalis tora*. In the published description it is thus depicted:—

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“Colour of hair fulvous fawn, much richer on the back; below, very much paler. Chin blackish, tip of tail black. The male is brighter and darker in colour than the female.” There are no marks on the face. When seen from behind, the animal has the appearance of having a conspicuous light patch on the stern.

I am again under an obligation to Mr. F. J. Jackson for measurements. He gives me the following:—Height of male, 4 feet $2\frac{1}{2}$ inches to 4 feet $3\frac{1}{2}$ inches; female, 3 feet 11 inches to 4 feet $\frac{1}{2}$ inch.

A large bull might probably weigh, complete, about 400 lbs.

A. H. NEUMANN.

SWAYNE'S HARTEBEEST (*Bubalis swaynei*)

SOMALI NAME, *Sig*

In Somaliland hartebeests are found in the elevated country above the ghauts, either in the open, treeless grass plains, known as “ban,” or in the light fringe of prairie land, dotted with low thorn bushes, which forms a belt round the edges of these open grass plains.

There are none, and I believe there never were any, in the open plains near Zeyla, or in other open plains of the Esa country; for, though the configuration of the country appears to be in other respects favourable for hartebeests, the grass is probably not of the right kind in these lower plains.

In the Marar prairie, and other great open spaces which occur in the enormous thorn forests of the Haud waterless plateau, they were—at least up to 1893—very numerous, running in herds of five hundred or sometimes even a thousand, packed closely together, and looking like masses of cavalry. Many herds would be visible, as far as the eye could reach, probably ten thousand being within sight at one time. Hundreds of single bulls would be scattered over the plains between the herds, grazing or lying down, and

a few herds of oryx and Sæmmerring's gazelles. These plains were dotted with red ant-hills some 20 to 25 feet high, and for miles and miles—to the far horizon—nothing would meet the eye but the grayish-green, undulating plain, the immense herds of dark red hartebeests, or other game, and the red spires of the ant-hills.

Though, after a few years of ceaseless persecution, the game may have almost left these plains at the present time, yet, at the right season, good sport could no doubt be still found with these fine antelopes. And though it is impossible to define their range to the south and east, there are most probably many great plains in those directions still awaiting exploration which contain hartebeests; if they do, the same scene will meet the eyes of the lucky explorer as that which used to be witnessed on the Marar prairie in the years 1890-93.

A herd of hartebeests, if in little-explored country, will usually allow the hunter to approach to within 200 yards before going off at a gallop. They are clumsy to look at, but very fast; for this is well known to be one of the fastest, and probably the most enduring of all antelopes.

The old bulls of a herd can be distinguished by their dark colour and thick horns as compared with the cows.

The best way to make a creditable bag of hartebeests is to pick out the single bulls, which are to be seen grazing apart from the herds; they are not so shy as the herd animals, carry good horns, and will not be mistaken for cows.

Where hartebeests have been much disturbed it will probably be difficult to get shots at under 300 or 400 yards. The Lee-Metford rifle is very accurate at these distances, and each miss throws up a puff of red dust from the ground, thereby assisting to correct the aim; therefore, to fire at a single bull at such a range cannot be called unsportsmanlike, provided no shots are fired at random into a herd. If the distance is considerable a

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hartebeest will be unable at first to discover where the shots come from, and will stand for three or more chances.

All these large bovine antelopes, of which the oryx and hartebeest are typical, require a good knock-down blow ; and though the Lee-Metford is an effective rifle for this kind of shooting, if a near approach, say to from 150 to 200 yards, can be managed, there is nothing so suitable, in the writer's opinion, as a .577 double express rifle. Hartebeests are very tough, and take a lot of hitting unless a fairly powerful rifle is used. The numerous ant-hills will give good cover to the stalker now and then.

The best plan, on sighting hartebeests, is for the sportsman to ride slowly along till he is within a quarter of a mile of the game and then dismount and lead the pony, the hunters keeping close up ready to catch the bridle and lead unconcernedly on when the sportsman drops down to fire. The pony should be led along as if the party were going to pass the game, but edging continually inwards so as to reduce the distance. When within range an ant-hill will afford a convenient cover behind which the sportsman can drop down, the remainder of the party, with the pony, going on. The herd will continue gazing at the party without missing one of its number until they have gone on into the distance. Meanwhile the concealed sportsman may either fire from the ant-hill, or, if the ground is favourable, crawl in towards the game, to get a nearer shot ; or he may, if the hartebeests seem disinclined to move far and he is down wind of the herd, wait until the party leading the pony has gradually circled round, so as to drive the herd gently within shot of the ant-hill.

Another way is to go out and lie in one of the higher tufts of grass, and send a hunter round to give his wind to the herd. This is not a sure method, as the herd may go off in the wrong direction, and it is very irksome to have to lie long where there is no shade and a hot sun overhead.

Masses of hartebeests are sometimes found with small herds of oryx and Sæmmerring's gazelles, in which case, on being disturbed, the oryx are the

first and the hartebeests the last to move away. They have great curiosity, and will rush round a caravan, occasionally wheeling and halting to gaze.

These animals are very handsome, with heavy, powerful fore-quarters, falling away towards the hinder parts. The coat is as glossy as that of a well-groomed horse.

The hartebeest bulls are very pugnacious, and two or three couples may be seen fighting round the same herd at the same time.¹

From living so much in the open plains, these hartebeests must subsist entirely on grass or weeds, for there is nothing else for them to eat, and they must be able to exist for several days without water.

The hartebeest is about as large as a donkey, but the head is held much higher. The horns vary greatly in shape, some being short and massive, others long and pointed, with all the gradations between these two extremes. Some curve forward with the points thrown back, others curve outwards in a plane with the forehead. The dark lean head of an old bull is a very handsome trophy, and the long skull has a remarkable symmetry.

H. G. C. SWAYNE.

COKE'S HARTEBEEST (*Bubalis cokei*)

IN BRITISH EAST AFRICA

SWAHILI NAME, *Kongoni*

The antelope whose name heads this section may be called the common hartebeest of the part of Eastern Africa under consideration, at least of the section of it extending from the neighbourhood of the coast to about 250 to 300 miles inland. In general appearance it resembles the other hartebeests, among all of which there is a strong family likeness; it is of a light yellowish-red colour (redder in the bulls), and in size is somewhat

¹ Cornwallis Harris's drawings of South African hartebeests, executed from the life some sixty years ago, show exactly the same characteristics.—ED.

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smaller than the true hartebeest of the south, and its near relative, *B. jacksoni*, which represents that form in these regions.

It is found in wooded country, wherever the bush is not too thick and there are open glades for it to graze in, but is far more plentiful in grassy plains. In favourable situations of the latter kind, such as the "ongata" of Masailand, these hartebeests sometimes congregate in large herds, often in company with Burchell's zebra, or Grant's and sometimes Thomson's gazelles; towards the coast they occasionally associate with *Gazella petersi*.

The range of this species does not seem to overlap that of its neighbouring congeners, except, perhaps, on the south side, where it is said to meet *B. lichtensteini* at no great distance from the boundary between the British and German territories, extending into the latter as far south as Mpwapwa. Inland its nearest neighbour of the genus is *B. neumanni*, the verge of whose range it approaches in the neighbourhood of Lake Naivasha, as has been pointed out to me by Mr. F. J. Jackson. Kikuyu, Mount Kenia, the Jambeni Hills, and the Mackenzie branch of the Tana, continue successively the limit of this species towards the north, the corner formed by these two last-named features being apparently its extreme northerly extension. It is not found much west of the longitude of Naivasha. As to its easterly limits I am not so clear, though I have not heard of it being met with east of the Tana; but the country between that river and the Juba is very little known.

In common with the other members of its genus, which it resembles in its somewhat ungainly appearance and rather stiff but wonderfully springy gait, this hartebeest is fleet and enduring, seeming, when put to speed, to spurn the earth with hardly an effort. Like them, too, its flesh is excellent meat, always providing (an important consideration with all game) that the individual animal be in good condition. The choicest venison in the case of all antelopes is ever

that of a large heifer. Travellers who have not had experience of the "veldt" (or "bara," as it is termed in Equatorial Africa), or who trust entirely to the judgment and consideration of their servants in such matters, often get the idea that game meat is bad, because they have been served with that of an old bull, or with the toughest parts of the beast, very likely freshly killed (in which state no meat is fit to eat), and probably improperly cooked. Where one has to put up with such imperfect chefs it is necessary, for the sake of comfort and health, to supervise the larder in some degree oneself, at all events to the extent of seeing that all the tenderest cuts are not appropriated by one's men, as will be the case if they are left to work their own sweet will on the carcase.

These hartebeest, though wary, are not especially difficult to stalk; nor, when stalked, do I think they are more difficult than other large antelopes to kill. The toughness of some species as compared with others is often laid stress upon; and the animal now treated of certainly does show wonderful vitality, as do many others, when the shot has not been a good one. But after all there is none that cannot be speedily laid low by a bullet in the right place. With practice in the field and an eye for anatomy, unconscious recognition of the spot to cover, in order to reach the heart or lungs from varying angles, becomes instinctive; and if the hunter be careful not to risk very long or fluky shots, there need rarely be any maiming or loss of wounded beasts to disgust him—cruel bungling, in comparison with which a clean miss is so infinitely preferable.

Within the limits above defined Coke's hartebeest is the most universally distributed of all the antelopes inhabiting the same region, being met with in almost every locality where there is any game at all, except in dense bush. For this reason it is, in its own domain, one of the most regular sources of meat supply for the traveller, and often affords a welcome means of providing the craved-for "ketiweyo" (or relish) for his patient but hungry caravan. Beyond that, and the diversion of obtaining it, there

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is not, after a few specimens have been added to his collection, much in the quaint-looking head of this beast, with its unimposing, crooked horns, to tempt the hunter to interfere with it, for, as a trophy, it is not very striking.

This, like all the hartebeests, is purely a grazer. It is often seen long distances from water.

Mr. Gedge (as quoted in the *Book of Antelopes*) gives the calving season as being the latter part of November and December.

The calves are astonishingly agile, racing away ahead of their mothers, when alarmed, at a marvellous pace. The alarm signal is a snort.

From Mr. F. J. Jackson's notes (kindly placed at my disposal) I am enabled to give the average height of a full-grown *cokei* as from 4 feet to somewhat more, and the length 7 feet and upwards; while the weight may run from about 300 lbs. to not far short of 350 lbs. or thereabouts.

A. H. NEUMANN.

THE CAPE HARTEBEEST (*Bubalis cama*)

Known universally to the various Bechuana tribes as *Khama*; the Zulus call it *Inhluzele*, the Makalakas *Ingama*, and the Masarwa Bushmen of the Kalahari Desert *Khama*, with a strong preliminary click on the *Kh*. The ancient Hottentot name was *Kama*, also with a strong preliminary click.

The Cape hartebeest, as it may perhaps be called, to distinguish it from the various other species to be found in Africa, obtained its well-known name from the Cape Dutch. By up-country Boer hunters it is often called Rooi or red hartebeest, to distinguish it from its near congener the tsesseby or bastard hartebeest—sometimes called Zulu hartebeest—of the Dutch.

This hartebeest stands at the withers something over 4 feet. Occasionally individuals will attain nearly 5 feet, but the average height may be

put at about 4 feet. In extreme length it attains to about 8 feet, or a little over. In shape and appearance this antelope scarcely gives the idea of the extraordinary fleetness and staying powers for which it is so remarkable. Its humped and elevated withers, peculiar drooping quarters, and heavy elongated head somewhat belie its splendid powers of galloping. The head and face are inordinately long. The stout horns, which average about 20 inches over the curve, are strongly corrugated until near the points. They spring from a very high and prolonged frontal ridge, rise upwards for several inches, and then, bending slightly forward, turn at an abrupt angle sharply back. The longest recorded pair of horns measure 25 inches. The horns of old bulls are strong and massive, and frequently a good deal worn and blunted at the tips. Those of the females are more slender. Hartebeests seldom, if ever, use their horns against mankind, even when wounded and at bay. Nor, if they did so, would these weapons, from their shape, be of much avail. But among themselves they may be seen butting and fighting, very often down upon their knees like a pair of lambs. The eyes are set very high in the head; they are reddish in hue, and from their position naturally command a wide field of vision. The brain is situated also very high up in the skull. The general colouring of the hartebeest is a bright reddish-brown, which darkens considerably upon the back, and is there distinguished, in living specimens, by a curious purplish tint. A noticeable patch of yellowish-white marks the rump on either side of the tail. The skin is, and has always been, in great demand among the various Bechuana tribes for making the handsome cloaks affected by these people. The face is black, while dark streaks are also noticeable on the outer parts of the fore and hind legs. There is a remarkable tuft or whorl of hair on either side of the face, just beneath the eyes. The black tail is well tufted, reaches below the hocks, and is remarkable for a curious reddish tinge if the hair is held towards the light and closely examined. The legs are clean, fine, hard, and shapely, while the hocks are well let

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down, and, like the greyhound's, strongly indicative of speed and staying power.

In the good days, when heavy game of all kinds was plentiful in Cape Colony, hartebeests abounded there, and were to be found ranging as far as the southern shores of that territory. At the present day they are only to be found, south of the Orange River in the parched deserts of the Bushmanland country, in the far north-west of the old colonial limits. Here a few troops are now and again to be encountered. In Natal the hartebeest is now very rare, and is only to be seen here and there on certain farms, where it is carefully protected. North of the Orange River this animal is, of course, far scarcer than in Cornwallis Harris's time (1836-37), when, as mentioned by that sportsman, it was to be found on the plains "in immense herds." It may be doubted whether in the whole of the Orange Free State any hartebeests are now to be found at all. In the Western and Northern Transvaal, where they were once also abundant, they are now extremely scarce. In Griqualand West, however, thanks to some measure of protection, these animals are here and there to be found in the wilder and remoter places. Bechuanaland and the eastern fringe of the Kalahari have always been among the most favourite headquarters of the hartebeest. Here, upon the wide grassy plains, alternating with pleasant stretches of level, grassy, thinly afforested, park-like country, these antelopes were exceedingly plentiful, and are still to be found, although, naturally, at the present day in numbers far fewer than of old. Still, even in British Bechuanaland, upon the eastern edge of the Lower Kalahari, fair troops of these animals are now and again to be encountered. In Khama's great country, and especially in the western portions of it, the deserts of the North Kalahari, and about the plains and salt-pans of the Botletli River, Ngamiland, hartebeests are still to be found in considerable numbers. These regions, indeed, may now be considered their principal headquarters. The range of the hartebeest in South Africa ends northwards in the region

of the Mababi River. Eastward, in Matabeleland and Mashunaland, it seems always to have been unknown. Mr. Selous has placed its easterly limit at the Serule River, no great way from Khama's present town of Palachwe. But even at the present time this antelope is to be found not very far west of the Serule. Here and there upon the eastern borders of Namaqualand and Damaraland, towards the Kalahari, and in many parts of that desert this animal is to be met with. In the more western portions of Great Namaqualand it seems to have been shot out by the well-armed Hottentots of that region. North of Lake Ngami, as of the Mababi River, the Cape hartebeest seems to have been always unknown.

The hartebeest is seldom found in thickly bushed country. It prefers what may be termed typical Bechuanaland country—wide, spreading, grassy plains, alternating with pleasant open forests, where small patches of bush and the forest trees offer shelter from the keen winds and frosts of winter and the unceasing blaze of the summer sun. I have observed that in British Bechuanaland these antelopes seem to prefer the more park-like, semi-afforested country to the open plains, probably for the reason that they now more easily find shelter there from their natural enemy, mankind. In Khama's country, farther north, one saw them more frequently upon open grassy flats; whence, however, they could at no great distance find harbourage among forest and thin bush. The thickest forest country in which I have found them was in the well-wooded region of the North Kalahari, twenty or thirty miles south of the Botletli River, where large troops of these antelopes occasionally wandered. These giraffe-acacia forests are, however, not to be compared in density with the close woodlands of Northern Europe.

The hartebeest may be classed as among those South African beasts of chase which are capable of existing for very long periods of time—weeks, and perhaps even months on end—without drinking. It is quite certain that some of the troops encountered by myself and my hunting companion

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in the North Kalahari during the rainless period of South African winter—in the months of June, July, and August—could have had little or no chance of finding surface water. These animals are exceedingly fond of licking at the salt-bracks or pans, so often to be found in South Africa ; and, even in British Bechuanaland, where they are in much more danger from night-shooting than farther north, they will venture, night after night, to lick at the curious, hard white brack-pans to be found here and there. These bracks may be seen hollowed at the edges by the tongues of antelopes and other game during ages of the past.

When first disturbed and seen moving in their slow paces, hartebeests are very deceptive in appearance. Their drooping quarters, somewhat lumpish aspect, and apparently sluggish action give them a rather mulish appearance, and the new-comer, viewing them for the first time, is by no means disposed to attribute to these antelopes those wonderful powers of galloping which they undoubtedly possess. But when really alarmed and put to it, their paces are extraordinary ; they stretch themselves to their work and, with a long, free, machine-like stride, reel off mile after mile at great speed in a way that, in a long tail-on-end chase, sets defiance to the most gallant hunting horse and the most determined rider. I have personally tested the fleetness and staying powers of these fine antelopes on several occasions, and I am bound to confess that of all the plain-frequenting game with which I am acquainted, they are, in a fair gallop, quite the most difficult—nay, hopeless—to run down. On one occasion, in company with other friends, I took part in the chase of a good troop of hartebeests over the dry level plains, thinly afforested with camel-thorn trees, in the neighbourhood of the Maritsani River, in British Bechuanaland. We pushed this troop hard in a chase of at least seven miles on end, with the result that while we ran our horses to a standstill, the hartebeests, although wheeling round occasionally to have a look at their pursuers, and thereby affording some few long-range shots, easily maintained their lead, and made their

escape without the least apparent inconvenience. One of them was, indeed, wounded and turned out of the troop, but it, too, succeeded for the time in making good its retreat.

On another occasion, upon a wide, open plain in the Kalahari country, not far from the desert pool of Maqua, I tested the speed and staying powers of a good hunting horse against some troops of these antelopes, and again with the result of the utter discomfiture of the horse and the easy escape of the hartebeests. If, indeed, the downfall of these animals depended upon their chase on horseback in fairly open country, few heads would fall to the hunter's rifle.

But the hartebeest, although possessed of such fleetness and endurance, has its weak side. It has, like many other antelopes, great curiosity, and, even when hunted, a troop of these animals will, if not pushed too hard, wheel round suddenly and halt for a few moments to take stock of their pursuers. At such a moment, if the hunter is not too far behind, he can by means of a spurt get a fairly steady shot at two or three hundred yards' distance. Again, the troop may be readily turned, like wildebeest and other game, by firing a bullet or two so as to strike up the sand in front of them. Occasionally, too, if the leader of the troop can be killed or wounded and turned out from its fellows, the rest of the herd will become bewildered, and will run hither and thither, so that the hunter may obtain a fair shot or two. In the pleasant open forest country of much of Bechuanaland these animals, if carefully spooed and approached with caution, may be found resting, and comparatively easy shots are sometimes obtained. And in this country, too, the mounted man, hidden by the giraffe-acacia groves, and knowing that the game will almost invariably make up wind, is enabled to cut off corners and come up again with the troop even when running. I have myself cut a troop completely in half in this way, and seen the hartebeests standing at 150 yards' distance, for a few moments completely bewildered, thus affording a steady shot. Still, when all is said and done,

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hartebeests are extremely wary antelopes ; they are possessed of marvellous powers of scent and hearing, and, upon the whole, they have managed to maintain their ground against the many hunters, white, black, and off-coloured, who pursue them, at least as well as most other South African beasts of chase—far better, in fact, than a good many species. The desert nature of much of their habitat has, no doubt, enabled them thus to prolong their unequal combat against the advances of civilisation and the increasing plenty of arms of precision. No antelope is more tenacious of life, or will oftener succeed in running long distances, and even making good its escape, although carrying the most severe wounds.

The flesh of the hartebeest, although dark in colour, is fairly good eating, though nothing like so good as springbok, eland, or klipspringer. It is used a good deal as *bultong*, and in that form (cut into strips, slightly salted and sun-dried) is very palatable. A hartebeest stew is by no means bad.

These animals are to be found in troops ranging from a dozen to fifty. In recent years I have seen troops of eighteen or so in British Bechuanaland, and as many as thirty or forty in the North Kalahari thirstlands. Occasionally troops are to be met with numbering as many as eighty or a hundred. The cows usually calve between the beginning of September and November.

H. A. BRYDEN.

JACKSON'S HARTEBEEST (*Bubalis jacksoni*)

BRITISH EAST AFRICA

All the hartebeests are known to the Swahilis by one name only—*Kongoni*. The Masai call this animal *Elgusoroi* and also *Elgorigor*, and the Wanderobbo *Rogoivok*.

Of the hartebeests found in East Africa, of which there are four kinds, the other three being *B. lichtensteini*, or *leucoprymnus* of Dr. Matschie, *cokei*,

and *tora neumanni*, this one is certainly the largest and finest-looking beast, and it can also lay claim to having, beyond dispute, the longest and ugliest head of all of them. It is widely distributed and has a larger range than its allies, being found from that part of Masailand between Lake Elmeteita and Nakuru for about 40 miles north, and then right away west to the Nile valley. It is also found farther east than the Masai valley, as Mr. A. H. Neumann obtained it on the Laikipia plateau, west of the Lorogi Mountains.

This shows that its range runs more east and west, rather than north and south. Until 1894 I thought that this species and *B. cokei* ran into one another in the vicinity of Lakes Naivasha and Elmeteita, but I have since found that this is not the case, as the extreme northern range of *B. cokei* practically ends in the Kedong valley (I, however, once saw a herd within about 6 miles of Naivasha), and *B. jacksoni* does not come farther south than Lake Elmeteita. It is another, and lately-described form, *B. tora neumanni*, that is found in the small circumscribed locality in the vicinity of Nakuru and Elmeteita. And it is this beast, which is an intermediate form between *B. cokei* and *jacksoni*, though quite distinct and no longer, as was at one time supposed, a hybrid between the two, that runs into *B. jacksoni*. In 1894, when going up country, I saw several *B. neumanni*, but had no opportunity of going after them, though I was struck at the time by their curiously shaped horns, and more particularly by their remarkably white sterns. It was not, however, until three years later that I managed to shoot a bull and two cows; the bull and one of the cows were actually feeding in company with two cow *jacksoni*. The two species being seen together in the same herd may be seized upon as an argument in favour of *neumanni* being only a hybrid, but I am myself convinced that this is not so, but a totally distinct species. I then had no more opportunities of going into the question until on my way down country in August last year (1898),

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when I not only killed three more bulls but had splendid opportunities of observing others, which I found in herds of twelve up to thirty between Lakes Nakuru and Elmeteita. In one herd of thirty-three, nearly all cows with six-month-old calves, there were two cow *jacksoni* also with calves, and, as I was on the top of a rocky hill with the early morning sun at my back, I had a close and good view of them as they fed below me within 300 yards. On being disturbed by the barking of some baboons they all walked quietly away straight from me, and the difference in the wider spread of the horns, and the much paler, almost white-looking sterns of *B. neumanni* was most conspicuous. It is certainly one of the most remarkably local beasts I have ever come across, as it is confined to a very narrow strip of country running east and west from Lake Elmeteita to the foot of the Mau slopes. Fifteen miles north of the camping-ground at Marago M'baruk, at the north end of Lake Elmeteita, I saw no hartebeests excepting *B. jacksoni*, of which there was a fair number.

The headquarters of *B. jacksoni* are, undoubtedly, the Mau plateau and Turkwel. On the rolling grassy downs of the former they are very common from about 8000 to 5000 feet. Wherever found, they may be seen in herds of four or five up to forty or fifty and sometimes more, also single bulls quite by themselves.

If asked the question whether they are difficult to stalk or not, I should say that it depends a good deal on the time of year, as they are certainly much more difficult to approach from December to April, when the grass has been burnt and affords little or no covert. In July and August they are quite easy to approach, as the grass is at that time long and still green; and it then generally amounts to stalking one of them only, the sentinel. No beast living knows better how to take advantage of the innumerable ant-heaps that are scattered all over the country it frequents, and the sentinel of the herd, whether they are scattered

about feeding or lying down, almost invariably takes up its post on one of these heaps.

I remember once coming suddenly across a good-sized herd lying down in a hollow on the Mau downs, but was seen by the sentinel, and they were up and away before I could do anything. As I felt pretty sure by the way they went off that they would not go far, I gave them plenty of time, as I thought, to settle down again, and smoked a pipe in the meanwhile. On following them up I found them in a position which, under ordinary circumstances, would have entailed a stalk of sufficient difficulty to make it pleasurable exciting, had it not been that there were no less than *four* sentinels all standing on *one* large ant-heap with their heads towards the four points of the compass. With so many long- and quick-sighted beasts to deal with, my attempt to outwit them was, needless to say, a fruitless one. This was years ago; since then I have learned wisdom, and whenever I find game in such an unapproachable position after once being disturbed, I invariably send one of my gun-bearers off to some distant point to attract their attention whilst I make the stalk from some other point, which, if the wind and other conditions will permit, is never from the direction of their line of retreat.

The measurements and weights of a bull and cow are as follows:—
Bull, total length, 7 feet 10½ inches; height at shoulder, 4 feet 3½ inches; tail, 1 foot 7½ inches; weight, 405 lbs. Cow, total length, 7 feet 7½ inches; height, 4 feet ½ inch; tail, 1 foot 5½ inches; weight, 341 lbs.

The cows drop their young from February to April, but there is no doubt that a few odd ones drop them throughout the year. They have only two teats. The rutting season is towards the end of May and beginning of June.

F. J. JACKSON.

LICHTENSTEIN'S HARTEBEEST (*Bubalis lichtensteini*)

Inkulanondo OF MASHUNAS ; *Konze* OF MASUBIAS AND OF CHILALA AND CHIBISA COUNTRIES ; *Kokotombwi* OF BAROTSE ; *Godonko* OF ZAMBESIA

This fine antelope, whose range is now known to extend over large areas of country to the north of the Zambesi in Central and East Central Africa, as well as over a considerable area of South-East Africa to the south of that river, was first discovered by the German naturalist, Dr. Peters, in the neighbourhood of Sena on the Lower Zambesi, and by him named after his compatriot, the traveller Dr. Lichtenstein. South of the point where Dr. Peters first met with it, this species of hartebeest is found throughout the greater part of the low-lying coast country between the Zambesi and the Sabi, and although its range has not been accurately determined in this direction, it very probably extends into certain districts of the country to the south of the lower course of the latter river. It is fairly common in the countries on both sides of the central and upper course of the Sabi River, as far north as a point some 50 miles south of Mount Wedza, and from there eastwards may be met with to within a few miles of Massikessi. Westwards from the Central Sabi a few stragglers range as far as and even beyond the Lunti River, whilst in 1885 a small herd of six suddenly appeared in Northern Mashunaland, near the Hanyani River, some 20 miles to the north-west of where the town of Salisbury now stands.

This is the more remarkable, as the natives of this part of Mashunaland are entirely unacquainted with Lichtenstein's hartebeest and have no name for this species of antelope in their language, which proves, I think, that it could never have been indigenous to this part of the country, nor to the best of my belief is there any other record of its appearance in that district.

Only one of these six stragglers was shot—a female, whose skull is

now in the Natural History Museum at South Kensington—and the rest must have made their way back to the country from whence they came—probably the neighbourhood of the Sabi River. Throughout the greater part of the country over which I have travelled to the north of the Zambesi, I have met with Lichtenstein's hartebeest, and it is one of the commonest antelopes on the tablelands lying between the Zambesi and the Kafukwe, as well as all over the country to the north of the latter river, which is where I first met with it in 1877-78.

At that time but very little was known concerning these antelopes, and, with the exception of two specimens in the Museum at Berlin, brought by Dr. Peters from the Lower Zambesi, the species was unrepresented even by so much as a skull in any other European collection. There are now, however, in our own Museum of Natural History at South Kensington, two mounted specimens—male and female—as well as several skulls of this species. In size and general appearance Lichtenstein's hartebeest much resembles the once common hartebeest (*Bubalis cama*) of South-Western Africa. Its forehead is not narrow and elongated between the eyes and the base of the horns, as in the latter species, but short and broad, with a vertical ridge in the centre of the skull which gives it a convex shape. Its horns too, though similar in shape to those of the Cape hartebeest, are much shorter, and instead of being rounded at the base are broad and flat. The black mark also down the front of the face of the Cape hartebeest is entirely wanting in Lichtenstein's hartebeest, the colour of whose head and face is of a uniform yellowish-red, with the exception of a black patch on the extremity of the under jaw. In the adult Lichtenstein's hartebeest the shoulders, back, and upper part of the neck and sides are of a very rich dark chestnut-red colour, the head, sides of neck, and lower part of the sides being of a much lighter shade. As in the Cape hartebeest, there is a patch of pale yellow on the rump, and the insides of the thighs and belly are also of a very pale yellow. The upper part of the tail, knees,

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and front of all four legs are black. An adult male Lichtenstein's hartebeest which I shot in the Manica country to the north of the confluence of the Zambesi and Kafukwe Rivers, had a patch of dark gray, about 6 inches in diameter, about a hand's breadth behind each shoulder. A female that I shot in the same part of the country also had these gray patches behind the shoulders; but in two other full-grown males, shot in the same locality, these patches were wanting, nor have I observed them in any of the antelopes of this species which I subsequently shot near the Sabi River or in the neighbourhood of the Pungwe.

Lichtenstein's hartebeests are usually met with in small herds of from five or six to a dozen individuals, and I doubt if I have ever seen more than twenty of these animals together. They are never found amongst hills, nor have I ever come across them in thick scrubby bush.

Like all the hartebeests with which I am acquainted, I consider that the species under discussion prefers open to forest country, for it is very partial to the wide open downs to the north of the Zambesi; and, when in country where patches of thin forest alternate with broad open glades, will nearly always be met with in the latter kind of ground. They are wary and keen-sighted, and when suspicious of danger will often climb to the top of one of the immense ant-heaps so common in South-East Africa, and survey the surrounding country from their point of vantage. When standing thus on the look-out, they hold their tails slightly raised and if anything has excited their suspicions they will watch it without making any movement themselves for a long time, but gallop off directly the suspected object attempts to approach nearer. When pursued on horseback, they go off at a light springy canter, and, if not pressed, will soon stop, and, turning broadside on, stand gazing intently at the approaching horseman. After a shot or two has been fired at them, however, they will probably commence to gallop in real earnest, and will be found to be very fleet and enduring, like their congeners the Cape hartebeest and the

tsessebe antelope. In the countries where I have met with Lichtenstein's hartebeest to the south of the Zambesi, the tsessebe antelope is also found, and I remember on one occasion to have seen a single tsessebe feeding with a small herd of Lichtenstein's hartebeests, and, upon another, an individual of the latter species accompanying a herd of the former animals. Like all other South African antelopes, Lichtenstein's hartebeests calve during the months immediately preceding the commencement of the rainy season, usually in October and November. The cows have two teats like a goat.

The flesh of this species is very good, but it ought to be fried or roasted with bacon or the soft lard of the elephant or hippopotamus, as its own fat is hard, and, as soon as it begins to cool, clogs on the teeth and the roof of the mouth.

F. C. SELOUS.

LICHTENSTEIN'S HARTEBEEST (*Bubalis lichtensteini*)

IN EAST AFRICA

Vaca de mato OF PORTUGUESE ; *Kkozi* OF AHENGA ; *Ngondo* OF WA NYASA

The size of this animal is large, and a fully adult male measures 52 inches at the shoulder. Two examples of adults are given below for comparison.

Male		Female	
	Inches.		Inches.
Nose to tail . . .	91½	Nose to tail . . .	87¾
Height at shoulder . . .	52½	Height at shoulder . . .	50¼
Length of tail . . .	26¼	Length of tail . . .	26
„ „ ear . . .	9½	„ „ ear . . .	9½
Point of shoulder to nose . . .	30	Point of shoulder to nose . . .	30
Girth of neck (min.) . . .	30	Girth of neck (min.) . . .	22
„ „ „ (max.) . . .	43	„ „ „ (max.) . . .	35
„ behind shoulders . . .	56	„ behind shoulders . . .	53
„ of barrel . . .	70	„ of barrel . . .	65½
„ of arm, 15 inches ; thigh 17		„ of arm, 13½ inches ; thigh 16	

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“General colour fulvous, deeper and more rufous along back. Chin, the usual tail-tuft, and the front of the lower part of all four limbs black. Lower part of rump pale yellowish, contrasting markedly with the dark rufous of its upper surface. Hairs of face reversed upwards from muzzle to horns, except on a median patch about 4 inches long, between the eyes.”¹ There is an indistinct yellowish superciliary mark from the inner angle of each eye, which nearly meets across the chestnut-brown forehead. The animal has black lips, the lower one furnished with prominent black hairs. There is a prominent black hairless tear-gland below the eye, which has a depressed puncture. I have seen adult males with the black mark down the centre of the forehead, which Mr. Selous found to be uniform light red, but it is not a constant character. The horns are somewhat short and thick, with the base much flattened from the front backwards; they curve first outwards, then upwards and inwards, and finally abruptly bend backwards, the points being nearly parallel with each other and comparatively approximated. The largest horns measure $22\frac{1}{8}$ inches in length over the front curve.

Between the hoofs of the fore-feet there is a hairy *cul de sac*, about 2 inches in length.

“*Habitat*.—East Africa, north of Sabi River, through Nyasaland and Mozambique to Usagara opposite Zanzibar.”²

The late Dr. Wilhelm Peters discovered this antelope during his travels in Mozambique in 1842 to 1848. Sir John Kirk in 1864 found it plentiful on the banks of the Zambesi in the dry season. Throughout Nyasaland, in the flat open country, whether in the riverine valleys or elevated plateaux, it is everywhere in evidence—in small parties of from four to eighteen animals, always on the alert and constantly in the open. When alarmed these antelopes are often very inquisitive, and they will pause in their awkward, lumbering canter, sometimes even after they have

¹ From Messrs. Sclater and Oldfield Thomas's description in *The Book of Antelopes*.

² *Ibid.*

FIELD
MUSEUM



PLATE V

- | | |
|------------------------------|------------------------------|
| 1. Hunter's Hartebeest Head. | 5. Blesbok Head. |
| 2. Korrigum Hartebeest Head. | 6. Sassaby or Tsessebe Head. |
| 3. Topi Hartebeest Head. | 7. Impala Head. |
| 4. Bontebok Head. | 8. Angolan Impala Head. |

been shot at, and turn half round to have a look at you. They retreat in Indian file, and each troop has a recognised leader, generally an old female, and if this pilot is knocked over several can be shot. It is their habit to feed in circles and return to the same spots to page, so that if you know the ground you can often come across them in this way.

Both sexes have been shot with dried mud on their horns, so that they doubtless kneel and wallow in damp spots like the blue wildebeest; the fact that the cranial cavities are infested with dipterous larvæ may induce this habit.

The calf is at first dun brown, with a black line down the centre of the back, and has not a trace of the yellowish blaze on the rump; it is very swift whilst still quite young, and I tried in vain to run one down on September 22, 1895.

On August 11 an adult cow carried a nearly full-grown fœtus. Wounded animals emit a hoarse grunting bellow, but I have never heard of one charging a sportsman.

PERCY RENDALL.

BASTARD HARTEBEESTS

Genus DAMALISCUS

As there is no popular name applicable to all the members of this genus, it seems advisable to take the second title of the type species (the tsessebe) as the general term. These animals are very closely allied to the true hartebeests, and are often included in the same genus, but they are distinguished by the more ordinary length of the face, the want of a distinct pedicle for the support of the horns, the absence of a sudden bend in the horns, which mostly form a simple curve, and the lower withers. The five well-marked species are restricted to Africa south of the Sahara, and may be arranged in three groups, as follows :—

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A. Horns doubly curved, at first directed upwards and outwards, then bending slightly downwards, after which their long smooth tips again point upwards.

1. Hunter's Hartebeest (*Damaliscus hunteri*).

B. Horns curving regularly backwards or slightly lyre-shaped, with only the short tips recurving upwards.

2. Korrigum (*Damaliscus corrugum*).
 - a. Typical race (*D. corrugum typicus*).
 - b. Topi (*D. corrugum jimela*).
 - c. Tiang (*D. corrugum tiang*).
3. Bontebok (*Damaliscus pygargus*).
4. Blesbok (*Damaliscus albifrons*).

C. Horns at first inclined outwards, with a single crescentic curve upwards and backwards.

5. Tsessebe or Sassaby (*Damaliscus lunatus*).

The second and third races of No. 2 are generally regarded as distinct species, but seem rather to be local modifications of the first.

HUNTER'S HARTEBEEST (*Damaliscus hunteri*)

GALLA NAME, *Herola*

The general colouring of this antelope is rufous, very much the same as the well-known Coke's hartebeest, with the exception that the lower half of the tail is white and that it has also a well-marked white line on the forehead, stretching upwards from each eye in the form of a very open inverted V. Unfortunately, I never took any body measurements of the only specimens which have, so far as I know, hitherto been shot, but, speaking roughly, this animal is about the size of a fallow buck. The hind-quarters slope away slightly from the shoulders like the hartebeest's. The horns stretch backwards in a curve and then upwards, being deeply annulated for the

first 12 inches or so and then smooth. The length of a good average pair of horns in my possession is 25 inches, circumference at the base $8\frac{1}{2}$ inches, and spread at the tips 16 inches. The horns of the female are considerably thinner and slightly shorter. Unlike so many of the African animals, I have never seen this antelope mixing with other game, nor do I ever remember seeing single males; they generally went in herds, consisting of from ten to twenty head, males, females, and young ones. They frequented the open plains and thin thorny bush, but were never seen in forest or thick bush.

In September 1888, after a successful expedition, for the second time, to the Kilimanjaro district, with Sir Robert Harvey and Mr. T. W. B. Greenfield, we returned to the coast, and, sending our heaviest goods round by sea in a dhow, we marched from Mombasa to the mouth of the Tana River, having great hope that up country we might come across some antelope new to science, as we knew the ground had never been previously shot over; and I believe no Europeans, with the exception of the brothers Denhardt, had ever been any distance up the river, and they did no shooting. At the mouth of the river we were met by boats, in which we travelled two marches to a mission-station, called Golbanti, where we stayed some few days to engage Galla guides, buy dug-out canoes, and engage Wapokomo, a tribe who live on the banks of the Tana, are accustomed to canoe work, and are wonderfully clever at poling and paddling up against the strong stream. On September 28 we made a start from Golbanti, and on October 16 arrived at the place where I killed the first specimen of Hunter's antelope, stopping a day or two to hunt wherever we heard of game. We were now about 150 miles from the mouth of the Tana, whose banks were covered with a belt of forest, from a mile to two miles in width. Before there was any chance of finding game, it was necessary to find one's way through this, by native or elephant paths, to the open country, which was on higher and sandy ground, covered with patches of bush,

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consisting of mimosa and aloes, with extensive open plains here and there. In the bush were numerous old tracks of elephants, which in the rainy season must be plentiful here. Lesser koodoo and a few buffalo were also found in the bush, and, wherever there was a swamp, waterbuck were common. On the plains and in very thin mimosa bush, during the trip, we came across elephant, rhinoceros, the topi, oryx, Waller's gazelle, eland, duiker, oribi, dik-dik, wart-hog, ostrich, and bustard. Wherever we could find a pool of water on the plains, we left the river for a day or two and camped by the pool. On October 18 I went out shooting on the north bank of the river, the Somali side, and first saw two lesser koodoo females, then two bucks of Waller's gazelle, which I commenced to stalk, as I had not then obtained a specimen, they being only found in one part of the Kilimanjaro country which I had not visited. Just as the *walleri* took the alarm and made off without my getting a shot at them, I saw two antelope coming towards me, which in the distance I mistook for impala, an antelope not found by us up the Tana, but common round Kilimanjaro; and it was not until I had fired at one of them and missed it that I saw, as they ran away with a heavy gallop like a hartebeest, that they were animals quite new to me. I set to work to track them through the thin bush, and had followed them a long way and was just thinking of giving it up when I spied them on an open plain. They saw me at the same moment and commenced to walk away slowly. The plain was so bare and devoid of long grass that stalking or crawling was out of the question, so I chanced a run in towards them as they were walking slowly straight away from me, and luckily got within nearly 150 yards of them before they stopped and turned, offering a broadside shot. Sitting down immediately I shot off my knees, hitting behind the shoulder one which dropped dead, and missing the other. The one bagged turned out to be a young male, and, thinking that in all probability it would prove to be a new species, I photographed the head on returning to camp and printed a

rough copy of it, which I sent home to Mr. Selater, who described it as new to science. We all of us, some few days later, got several specimens, and I one day, near camp, killed a good male and female, which I skinned entire, and which are now mounted in the Natural History Museum. We always found these antelopes possessed of great vitality, and it required a very well-placed bullet to stop them. I see, on referring to my diary, that Greenfield and myself each lost two good bulls on the same day, both hard hit. We shot continually on the south side of the river, but never found them there; the farthest point we reached was a place called Kombo, where they were still found.

H. C. V. HUNTER.

THE KORRIGUM OR SENEGAL HARTEBEEST (*Damaliscus korrigum typicus*)

NATIVE NAME IN BORNOW, *Korrigum*

"Size medium. General colour reddish-fawn, with distinct black patches on face, shoulders, hips, and thighs. No dark dorsal line and no dark markings on feet. Tail barely reaching to hocks; its terminal third with a blackish crest along the top.

"Skull heavily built; basal length, 14.8 inches; greatest width, 5.7; from muzzle to eye, 10.8.

"Horns thick, rising abruptly upwards and backwards from the skull and evenly curving backwards, diverging as they go, their extreme tips showing a tendency to be recurved upwards."¹ Horns which I procured during a residence on the River Gambia were over 21 inches in length.

"*Habitat*.—Senegambia and hinterland of West Africa."²

Ogilby in 1836 proposed the name, writing to the Zoological Society, basing it on the head and horns brought home from Bornow by Denham and Clapperton on their return from their expedition to Central Africa 1822-24.

¹ From *The Book of Antelopes*.

² *Ibid*.

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In 1840 Whitfield, a collector employed by Lord Derby, obtained living specimens near Macarthy's Island on the Gambia River, and brought them safely to Knowsley. Here they bred and thrived, but the only perfect examples extant in England now are two mounted specimens in the Derby Museum, now in Liverpool. Messrs. Sclater and Thomas have no doubt that these were specimens formerly living in the Knowsley Menagerie.

There is a doubt whether this animal has not been recently obtained by German collectors on the north and west of Lake Victoria Nyanza, but reliable evidence of this has not yet been obtained sufficient to prove that it is not *Damaliscus corrugum jimela*.

PERCY RENDALL.

THE KORRIGUM OR SENEGAL HARTEBEEST (*Damaliscus corrugum typicus*)

IN NIGERIA

HAUSA NAME, *Kanki*

The Senegal hartebeest is but little known to sportsmen, and appears to be mainly confined to Senegambia. The only place in Nigeria where it is met with to my knowledge is on the banks of the Benue, between Ibi and Yola. It is distinguished from the *Bubalis major* chiefly by a slightly increased weight, shorter face, more irregular horn, and also by the colour and texture of its coat. The colour of the Senegal hartebeest, as found on the Benue, is of a dark brown with deeper brown points, and its coat has a beautiful and peculiar "watered-silk" appearance. The horn lacks the regularity of angle which characterises that of the West African hartebeest, and has only a slight curve outwards, then slightly forwards, and finally backwards, but all curves are irregular and slight. It is also thick throughout its length, does not taper in any way gracefully, and is altogether an ugly horn.

A. J. ARNOLD.

THE TOPI (*Damaliscus corrigum jimela*)

IN BRITISH EAST AFRICA

SWAHILI NAME, *Topi*; UGANDA NAME, *Nemira*

The topi, although nominally a hartebeest, can only be reckoned as belonging to that group in the sense in which the so-called bastard hartebeest (*Damaliscus lunatus*) of the south, its near relative, is included among them. For though it exhibits some affinities to that large group (now generally included under the genus *Bubalis*), yet it differs considerably more from any of the species than they do among themselves. Its head is less peculiar, and its fore-quarters not so high in proportion. It is a good-sized beast and sturdily built (a bull would, I should say, weigh about 350 lbs. as he fell), and is of that beautifully shaded purplish tint peculiar to the genus, with a sheen on its coat which seems to change colour in different lights, like shot silk. The male stands about 4 feet at the shoulder.

The distribution of this species is curious. It occurs quite near the coast and also far in the interior, but there are wide regions where it is unknown, separating the various parts of its range. I met with it in small numbers many years ago on the western edge of the great Mau forest (near that part called the Mau Nyarok or Black Mau) just south of Sotike and Lumbwa, and I have little doubt that it may range down to Lake Victoria Nyanza, there at that part of the coast south of Ugowe Bay, although we saw none in Kavirondo nor anywhere along the north coast of that lake.

My friend Mr. F. J. Jackson, that enthusiastic naturalist and careful observer, than whom no one has had a more extensive experience of East Africa, speaks of it, in the Badminton Library (Big Game), as the commonest antelope in the Galla country (near the coast), and as being found in Uganda; and he tells me that he has met with a few on the

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Mau plateau and down the Nyando River to near Lake Victoria Nyanza, and that it ranges round the north of Mount Elgon into Uganda, Budu, and Toru, on which side of the lake it is common. But it is not found anywhere throughout the extensive region lying between the coast belt and Lake Rudolph; for on my expedition to that lake I met with no signs of it after leaving the neighbourhood of the coast until I reached the Bay of Lalia, half-way up the east side of that lake. It was here, on this northern half of the east coast of Lake Rudolph, that I became intimately acquainted with the species, and especially towards the north-east corner, where I met with it in immense numbers, and had ample opportunities of observing it.¹

It would appear as if this antelope had some special predilection for the vicinity of large bodies of water, although it may be found some considerable distance away from the actual shore. Thus it occurs not far from the sea, from the neighbourhood of Mbungu (a short distance inland from Mombasa) northward, but I think nowhere on the coast to the south of that latitude; and again in the neighbourhood of the inland lakes. Probably there is some peculiar condition of soil in such localities favouring the particular kind of pasturage adapted to its wants.

I may here quote my allusion in *Elephant Hunting in East Equatorial Africa* to the herds of topi in the neighbourhood of Reshiat. "There was a broad level valley behind, overlooked by my ridge, and in this the topi antelope used often to collect towards evening or in the early morning. They were sometimes literally in thousands, the flat for a mile or more being covered with them, collected in one enormous herd. During March all the cows seemed to have calved, and I used to enjoy watching the gambols of the troops of light fawn-coloured calves racing fleetly up and

¹ It is a remarkable thing that no mention is to be found of this antelope in Von Höhnel's most interesting account of the discovery by Count Teleki and himself of Lakes Rudolph and Stefanie, although he frequently enumerates the kinds of game they met with. Can it be that it migrates?

down, and chasing each other in and out among the herd. Once or twice I had the opportunity of witnessing a fight between two bulls. Between the rounds they stand a little apart, pretending, as it were, to take no notice of each other ; then suddenly, as if instinctively impelled by some simultaneous impulse, they rush together, going down on their knees as their heads clash. At night the topi used to come quite close up to my camp, and I have seen their footprints in the morning within fifty yards of my hut, and often heard them grunting and sneezing in the night."

The flesh of the topi is excellent, being about the best meat furnished by any antelope found in this part of Africa, just as that of its relative the bastard hartebeest or sassaby is esteemed for its superiority in that respect by the natives of South Africa. It seems, moreover, to be generally in good condition, for all that I shot were very fat.

This antelope seems to be among the species which are purely grazers, living, so far as I was able to observe, on grass and similar herbage, to the exclusion of leaves, etc. It affects the open plains near Lake Rudolph, but also wanders through the more open parts of the bush ; and in Sotike I found it frequenting swampy glades on the borders of the forest. In Reshiat, at all events, it is not ordinarily difficult to get within range of. I could generally shoot one or two whenever I wanted, and on one occasion I killed two with one bullet.

As in the case of all gregarious animals, the strongest males drive out their weaker brethren from among the herds of cows ; and these vanquished bulls congregate in separate herds, or sometimes a sullen old bachelor is found alone or associating with a herd of Grant's gazelles.

The El Gume natives trap them with an ingenious snare, which I have described as follows in the book above quoted from. "The snare is made from twisted strips of hide, laid up exactly like the 'neck-strop' used to yoke bullocks in South Africa, with a running noose at each end. A contrivance like a little wheel without a nave, with an inordinate number

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of spokes (sharpened at the end pointing to the centre), is laid over a circular hole dug in a path or crossing much frequented by game, and on the outer edge of this the loop of one end of the snare is laid, a log being attached to the other. On an antelope treading on this trap (which is covered over with grass, etc.) its foot goes through the centre of the wheel; the converging spokes hold fast to its fetlock, preventing the noose from slipping off until the latter is drawn tight. Then it sets off with the log dragging and bumping beside or behind it, alternately making short bursts and turning to face the log, which it cannot shake off, until, tired out, it falls an easy prey to the trapper."

The herds used to come down in the evening or during the night to drink at the lake, and it was often in their paths leading to the water that these snares were set. I have seen the Reshiat natives trying to cut them off when a large herd had approached the shore and chasing them with their spears, but they never seemed to kill any; and indeed they are such poor hunters that the topi may sometimes be seen in the early morning feeding quite close up to their kraals, having apparently little fear of them.

Both sexes are horned, the horns of the cow being very similar to, but slightly smaller than those of the bull. Those of my best male specimen measure 19 inches along the front curve.

I have referred to this animal as the "topi"; but whether the species is identical everywhere in British East Africa, or whether the fine distinctions recently drawn between its representatives in different regions (possibly after all mere local varieties) would differentiate the Lake Rudolph type from that of the coast or Uganda, I will not venture to hazard an opinion; probably there may eventually be found to be a regular gradation from the "topi" to the "tiang," and possibly to the "korrigum" also.

A. H. NEUMANN.

THE TIANG (*Damaliscus corrigan tiang*)NATIVE NAME, BAHR-EL-GHAZAL, *Tiang*

This antelope, whose habitat, as at present established, is Senaar, Kordofan, and the Bahr-el-Ghazal provinces, is but little known. It closely resembles the other Korrigum hartebeests, but is slightly inferior in size. A pair of horns (female), now in the Natural History Museum, procured by the late Consul Petherick, measure $20\frac{1}{4}$ inches over the curve, have a circumference of $6\frac{3}{4}$ inches, and measure $6\frac{7}{8}$ inches from tip to tip. These came from the Bahr-el-Ghazal.

H. A. BRYDEN.

THE BONTEBOK (*Damaliscus pygargus*)*Bontebok* (PIED BUCK) OF THE CAPE DUTCH

Writing on the bontebok in 1837, Captain, afterwards Sir, Cornwallis Harris states that at that time "it was common in the interior of South Africa, and still found near Cape Agulhas," and in all recently published works upon South African antelopes we are told, upon the strength of Harris's writings, that although it has now ceased to exist in the interior of South Africa, and is only to be met with in small numbers near Cape Agulhas, it was once widely distributed over the open plains of the Orange Free State, Bechuanaland, and the Transvaal.

There is ample evidence, however, that the bontebok never existed, at any rate within historical times, in any other part of South Africa but the plains which skirt the sea in the immediate vicinity of Cape Agulhas, and that Cornwallis Harris was entirely mistaken in supposing that he had met with this species to the north of the Orange River.

The first Dutch settlers at the Cape of Good Hope met with a richly coloured species of antelope in the neighbourhood of Cape Agulhas which they named the bontebok,—pied or variegated antelope,—and it was more than 100 years later that the very nearly allied species now known as the blesbok was first encountered on some high-lying open plains to the south of the Orange River in the present Colesberg division of the Cape Colony. These undoubted blesboks were, however, at first called bonteboks, and the plains over which they once roamed are known as the "bontebok flats" to this day. When the emigrant Boers crossed the Orange River in 1836 and trekked into the plains of what is now known as the Orange Free State, they met with immense herds of blesboks, but saw no bonteboks. They, however, confused the names of the two species, those who had some acquaintance with or knew something about the latter animal calling the new but nearly allied species by the old name, whilst the majority, who had never seen or heard of bonteboks, called the new species blesboks—from the broad white blaze down the face. Thus a confusion arose between the bontebok and the blesbok which there can be little doubt caused Cornwallis Harris to believe that both species were abundant to the north of the Orange River. It will be as well, however, to quote what he himself says on this subject. On page 88 of his magnificent work on the Game and Wild Animals of Southern Africa he writes: "Until we had reached the headquarters of the bontebok in the heart of those great unexplored plains (of the interior of South Africa) whereon thousands upon thousands were seen and numbers daily slain, one small troop near Kapain and half a dozen stragglers at the foot of the Cashan range¹ were all that occurred after the first specimens which we met with on the Chooi desert" (in Bechuanaland).

This means that when Harris met with blesboks for the first time in Bechuanaland he was told they were bonteboks, and he seems to have

¹ In the present Magaliesberg district of the Transvaal.

thought that all the blesboks he subsequently met with were bonteboks, until on his journey southwards through the plains lying between the Vaal and Orange rivers he found that what he thought were bonteboks were called blesboks by many of the Dutch farmers. That at one time he was hopelessly confused between the two species his opening paragraph concerning the bontebok proves, I think, beyond a doubt. It reads as follows: "Upon the ocean-like and untrodden prairies of the interior—those especially lying south of the Vaal River, of which large tracts are strongly impregnated with saline particles—the incredible numbers of the pied antelope (bontebok), *and of its still gayer congener* the blesbok, that are frequently congregated, etc."

As the bontebok is much more richly coloured than the blesbok, it seems inconceivable that Captain Harris could have written thus if he was then acquainted with both species. On his return to the Cape Colony he seems to have been still doubtful on the point, for he says he was then "anxious to ascertain whether the animal rigorously protected in the neighbourhood of Cape Agulhas differed in any respect from that found in the interior, *as pretended by the Colonists.*"

Captain Harris succeeded in obtaining three specimens of the true bontebok at Zoetendals Vley near Cape Agulhas, and says that "these proved amply sufficient to satisfy not only my own curiosity, but my inclination for such sport." Unfortunately he totally omits to mention whether or no the bonteboks which he shot near Cape Agulhas were identical or not with the animals previously obtained in the interior which he had supposed to be bonteboks. Even if taken by itself, the evidence of Captain Harris concerning the distribution of the bontebok is far from convincing; but when we find his assertion that the animal existed on the plains of the Orange Free State in *incredible numbers* in 1837 is not borne out by the testimony of any other European traveller or hunter, nor by any of the original Boer pioneers, who trekked into that

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country in 1836, some of whom are still living, it seems difficult to come to any other conclusion than that Captain Harris was mistaken in supposing that he met with bonteboks to the north of the Orange River. Gordon-Cumming visited the Orange Free State and Southern Bechuanaland for the first time in 1844 (only seven years later than Captain Harris's journey through the same country), and between that year and 1850 passed through the same countries every season on his journeys to and from the far interior. No one who has read the account of his travels can doubt that he was a very observant man and a good field naturalist, as well as a daring hunter; and even if he did not know of the existence of the bontebok, had he found these animals inhabiting the same countries as the blesboks, he would most certainly have made some reference to them in his writings, even if he had only looked upon them as a variety of the blesbok. Apparently, however, he only found blesboks, and although these animals scarcely commenced to diminish in numbers in the Free State, Bechuanaland, and the South-Western Transvaal until after 1865, no one but Captain Harris has ever recorded the existence of the bontebok in those territories.

Since Harris speaks of them as being equally plentiful with the blesbok in 1837, they could not well have been completely exterminated before the latter animals began to seriously diminish in numbers. I have questioned some of the older Boers in the Orange Free State and the South-Western Transvaal on this subject, and described to them minutely the points of difference between the bontebok and the blesbok, and they one and all declared that the animal I described to them as the bontebok, with a large pure white patch over the rump, legs almost pure white, and perfectly black horns, was altogether unknown to them. In fact amongst all the millions of blesboks they had seen and the thousands they had shot they had never met with one single bontebok to the north of the Orange River. I have also been assured by old colonists who knew the bontebok

flats as far back as 1835, when they still swarmed with game, that the animals from which they received their name were not bonteboks but blesboks.

One reason why I consider it is impossible that the bontebok and the blesbok could ever have co-existed in the same district is because the two species are so very closely allied that they would inevitably have interbred and become fused into one species more or less intermediate between the two very closely allied forms. There is not more difference between the bontebok and the blesbok than there is between the stripeless eland of South-Western Africa and the richly coloured striped form of the same species found all over South-East Africa, whilst the difference between the two former animals is less than that between the variegated form of bushbuck found on the Chobi River and the dark race of the same species of antelope inhabiting the coast region of the Cape Colony. Only, in the case of the elands and the bushbucks, the extreme forms are connected by an innumerable series of links which can only be looked upon as local variations from the type species. If all the varieties of the bushbuck which exist in South-East Africa, and connect step by step the dark brown and almost spotless form found in the Cape Colony with the richly variegated race met with on the banks of the Chobi, had been exterminated before the advent of Europeans in South Africa, leaving only the two widely different forms, there can be no doubt, I think, that the bushbuck of the Chobi and the bushbuck of the Cape Colony would have been considered to be two distinct species of antelopes. In the case of the blesbok and the bontebok, the connecting links or intermediate forms have been lost. It is not improbable, I think, that the blesbok ages ago once ranged right through the Cape Colony down to the shores of the sea at Cape Agulhas, but that the gradual dessication of the karroo in the south-western portions of the Cape Colony—of which there is a good deal of evidence—or several years of continuous drought, caused the withdrawal

of the species from those parched and waterless plains. Those which had reached the plains near Cape Agulhas, however, where there is plenty of water, would have had no reason to move, and thus a portion of the race would have become isolated, and, in course of time, differentiated from the original stock. The points of difference between the blesbok and the bontebok are not very great, but they are constant. The latter is a more richly coloured race of the former.

The influence of environment may possibly have had its effect in the course of ages on the coloration of the bontebok, as the plains where these animals live skirt the shore of the deep blue sea, and are bordered by mountains of a considerable altitude, the upper parts of which are often covered with a mantle of pure white snow, whilst monotony of form and colour distinguishes the environment of the blesbok. The latter, when in fine condition, is a beautiful animal, and in life a purply sheen plays with every movement over the rich dark colouring of the neck and the uniform brown of the rest of the body. This beautiful sheen is also characteristic of the bontebok, and enhances the contrast between the rich deep colour which extends from the neck along the lower portion of the sides to the flanks, and the light lilac brown—of the back on the one side and the snow-white belly on the other. In the blesbok a semicircular disc over the rump above the tail is lighter in colour than the rest of the body, and shows very distinctly when the animal is running end on, with the sun shining on it. In the bontebok the upper part of the tail and the semicircular disc above the tail, which in the blesbok are pale brown, are snow white.

The legs, too, in the bontebok, from the knee and hock downwards, are almost pure white as a rule, though in some specimens there is a good deal more brown extending from the hoofs up the front of the legs than in others; whilst in the blesbok they are only white on the insides.

The white blaze which runs down the face of both the bontebok and

the blesbok differs somewhat in individuals of both species, some blesboks having the white blaze, which is always present down the front of the face from the eyes to the muzzle, only just separated by a thin line of brown hair from the white patch on the forehead between the horns, whilst, in the typical bontebok, the white blaze on the face below the eyes is joined to the white patch on the forehead by a white streak of varying breadth.

Whilst the horns of the blesbok are always of a greenish colour, those of the bontebok are invariably of an intense black, probably attributable to some chemical constituents being present in the soil near Cape Agulhas which are wanting in the country farther north. In general appearance these two nearly allied species bear the closest resemblance to one another, being, as Harris long ago remarked, "equally robust, hunchbacked and broad-nosed, and rejoicing in the same whimsical and fine venerable old goatish expression of countenance." Good specimens of males and females of both species can now be seen side by side in one case in the Mammalia Gallery of the Natural History Museum in Cromwell Road, South Kensington, where the points of resemblance and the differences between the two species can be studied at leisure. The bontebok is slightly larger and heavier than the blesbok. The male specimen of the former now in the collection of the British Museum, a fine full-grown animal in good condition, weighed exactly 200 lbs. as he lay, whilst the male specimen of the latter—also a very fine animal of his kind—weighed 180 lbs. as he lay and 135 lbs. clean. Two other bontebok rams—apparently fine full-grown animals—shot at the same time as the above mentioned specimen, weighed respectively 166 lbs. and 160 lbs. as they fell. From these data, I should say that, though an exceptionally fine blesbok will weigh more than an ordinary bontebok ram, yet the heaviest bonteboks will outweigh the heaviest blesboks. The horns in both species attain to a length of about 16 inches, in the males. The females also carry horns, which, though nearly as long as in the males, are much slighter. The bontebok, having

always been confined to such a small area of country, would probably have been exterminated early in the present century had it not been protected by the Cape Government. Harris informs us that at the time of his visit to South Africa in 1836-37 a fine of 500 rix dollars (£37 : 10s.) was attached to the destruction of one of these animals, without a special license from Government.

In spite of stringent laws, however, there can be no doubt that many bonteboks were annually killed, and, had it not been for Mr. Alexander Van der Byl, this fine animal, one of the most strange and characteristic of all South African antelopes, would probably ere now have vanished from the face of the earth. In 1864, however, this gentleman, whilst engaged in enclosing with a wire fence his far-extending domain, known as Nachtwacht Farm, near Bredasdorp, conceived the idea of driving all the bontebok on the neighbouring plain, within the enclosure. Circumstances favoured him, and he was able, by a piece of good fortune, to drive the greater number of all the bonteboks still left alive into his own ground, within the enclosure. He puts the number that were thus secured at something like 300, and his nephews believe that there has been but little increase or decrease in their number since that time. I may not have seen all the bonteboks at Nachtwacht, but it certainly did not appear to me that there were anything like 300 of these animals on the enclosed ground at the date of my visit in 1895, and again in 1896. Mr. Van der Byl's good example was followed by one of his neighbours, Dr. Albertyn, who also has now a small herd of bonteboks on his enclosed farm. Besides these carefully protected herds, there are a few still surviving on the plain, outside the enclosed farms, both in the neighbourhood of Bredasdorp, and near the village of Swellendam. Altogether, I doubt very much whether more than 300 of these animals are still in existence. In habits the bontebok is precisely similar to the blesbok, and it is therefore needless to add anything on this head to what has already been written in the section concerning that

species. The calves are dropped in September and October, and, as with most other African antelopes, gain strength so rapidly that, when a week old, they cannot be run down by an ordinary shooting horse. Bontebok, which no doubt once congregated in large droves, may now be seen on the enclosed farms, near Cape Agulhas, in small herds of from half a dozen to twenty or thirty individuals. Though not very wild, they will not allow one to approach on foot to within 300 yards of them, though they will often permit a cart and horses to be driven much nearer before taking alarm. They seem to know that no danger is to be apprehended from outside the fence, for I saw three stand and calmly watch a cart which was being driven along the road outside the fence within 100 yards of them. When alarmed they run against the wind with great speed and endurance, and when pressed lie flat to the ground, with their heads held so low that their noses appear to almost touch the earth.

F. C. SELOUS.

THE BLESBOK (*Damaliscus albifrons*)

Blesbok OF THE CAPE DUTCH ; *Nōni* OF THE BECHUANAS AND BASUTOS ;

Inōni OF THE KAFFIRS

This remarkable antelope stands, in well-grown specimens, from 3 feet 4 inches to 3 feet 6 inches at the shoulder, and measures about 6 feet in length. The body is strongly built, the withers, as in the bontebok and hartebeest, are elevated and somewhat humpish ; the head is long and narrow, surmounted by strong, but not heavy horns of elegant shape, which are divergent, strongly annulated, slightly lyrate, and in good specimens average 15 or 16 inches in extreme length. The largest pair of blesbok horns yet recorded (see Rowland Ward's *Records of Big Game*) measure $18\frac{1}{2}$ inches over the curve, $12\frac{1}{4}$ inches between the tips, and $5\frac{3}{4}$ inches round the base ; but this example, in the possession of Sir Edmund Loder, is of quite exceptional proportions.

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The general colouring of the blesbok is in living specimens very beautiful, but the coat, as with the bontebok, tsessebe, and hartebeest, fades a good deal after death. The sides of the head and neck are of a rich purplish brown; the body colouring is brown, very curiously glossed upon the upper parts with a tinge or bloom of purplish violet. This singular glaze or bloom is one of the most remarkable things in connection with this antelope, as it is also with its near ally the bontebok, and, in a lesser degree, with the tsessebe. The chest and croup are rufous, the belly and inner parts of the legs pure white. The face blaze also, from which the animal obviously obtained its Dutch name (*bles* being the exact equivalent for our English word "blaze," which, in turn, is derived from the Saxon *blæse*) is snow white. The main difference between the blesbok and bontebok, or that most readily to be noted by the casual observer, lies in this blazing of the face and the white rump-patches. In the bontebok the snow-white marking runs down the whole of the front of the face from the base of the horns without interruption. In the blesbok the full blaze is slightly interrupted by a junction of the dark brown head colouring just above the eyes, so that a white star, as it were, appears in the centre of the forehead. The white marking, after this slight interruption, runs from the point of union of the brown head colouring right down to the muzzle.¹ In the blesbok, too, the notable white rump-markings to be observed in the bontebok are absent, or rather are represented by pale brown colouring, while the bontebok is somewhat darker upon the sides and flanks. The tail of the blesbok is longish—16 inches or 17 inches,—composed of brown and white hairs, and reaches a point just below the hocks.

The blesbok has the faculty, like many other African animals, of keeping, apparently without trouble or exertion on its own part, a marvel-

¹ These distinctions are, generally speaking, clearly to be perceived. But note Mr. Selous's remarks upon aberrations in this respect in his article on the bontebok, pp. 180, 181.

lously clean coat. I travelled from the Cape many years ago (1876) in the *Edinburgh Castle*, one of Donald Currie's early liners, in which were comfortably installed on deck a pair of blesboks. These antelopes I made great friends with. They were mild, confiding, and most good-tempered, and always pleased to welcome a visitor. Although confined in padded stalls, in which they had not a superabundance of room, they thrived excellently on hay and clover and maintained their condition marvellously. Their coats were always the picture of cleanliness, and showed to perfection that wonderful glaze-like bloom for which these animals are famous, while the white faces and under parts were always spotless.

Mr. Selous, in his article on the bontebok, has well pointed out the confusion which has for so long reigned concerning that antelope and its very near cousin the blesbok. He has, in fact, practically cleared up all points of doubt concerning that confusion and the true habitat of the bontebok.

From the time of the earliest travellers—long before Cornwallis Harris appeared—the confusion between these very similar antelopes had always existed. Sparrman, the Swedish naturalist, who travelled at the Cape in 1775, speaks of the bonteboks of Swellendam (where these animals still exist), and states that a farmer who had travelled to the north of the Colony had encountered bonteboks which he described as “somewhat different” from those of Swellendam. These northern forms were undoubtedly blesboks, although the plains where they were found were christened and, as Mr. Selous points out, are still called “Bontebok Flats.” Again, John Barrow, a trained and competent observer, travelling in the north of the Colony in 1797, encountered large numbers of antelopes which he mistook for bonteboks, though he describes them as considerably smaller than those of Swellendam. Barrow undoubtedly saw blesboks, and that in the same region of the Bontebok Flats, which lie just south of the Orange River, in what is now known as the Colesberg Division of Cape Colony. The earlier Boers travelling northward, in fact, mixed up blesboks with bonteboks, and

the confusion became for generations perpetuated. As Mr. Selous, after much personal research, has now demonstrated, the bontebok has in modern times—since the Dutch entered South Africa—never been known in any other habitat than the Division of Swellendam, in the south-west of Cape Colony.¹

The original habitat of the blesbok may be defined as the northern karroos of Cape Colony, the Orange Free State plains, the Transvaal High Veldt, a portion of the rolling grass plains of the country now known as Griqualand West, and British Bechuanaland, the latter of which, it may be explained, marches with the western border of the lower portion of the Transvaal. So far as I can ascertain, this antelope seldom, if ever, ranged north of the Molopo River, which forms practically the northern boundary of British Bechuanaland. The blesbok's habitat was, as is so often the case with South African animals, curiously and even capriciously restricted. I do not find that the range of the animal in Bechuanaland has ever tended very far westward from the Transvaal border, though there seems no absolute reason why the blesbok should not have roamed widely into the adjacent Kalahari, which is practically identical in character with the more settled portion of British Bechuanaland. Nor in the Cape Colony had the blesbok, apparently, a very wide range. In no books of travel have I ever found mention of this animal upon the northern plains much westward of the present division of Colesberg, though there seems to be no sound reason why the vast herds of these once innumerable antelopes should not have trekked in their migrations westward into the great springbuck country still known as Bushmanland.

At the present time, such has been the senseless slaughter waged against these fecund and splendid antelopes, blesboks are now growing very scarce, and their habitat has been very greatly circumscribed. They have long vanished from the Cape Colony, probably for at least thirty years

¹ I am bound to confess that till within the last year or two I had a strong impression—largely due to Cornwallis Harris's descriptions—that bonteboks were once found in the Orange Free State and the northern plains of Cape Colony. Mr. Selous has quite convinced me to the contrary.

past, and are now only to be found, chiefly on protected farms, in some few portions of the Orange Free State, the Lower Transvaal, and British Bechuanaland. In British Bechuanaland they still ranged freely in small herds until about 1882, and, in fact, in that year, when the land pirates and freebooters were encamped in tents and waggons on the site of the present town of Vryburg, blesboks occasionally galloped right through the encampment. But after the expedition of Sir Charles Warren in 1884-85, and the influx of white settlers, blesboks disappeared. I was extremely glad to hear a year or two since (1897) that a few blesboks were straying back into Bechuanaland, and were appearing on the great grass plains in the neighbourhood of Vryburg. These timid migrants undoubtedly came from one or two farms on the Western Transvaal border, where they have for some years been preserved. As a rule the only blesbok-shooting to be obtained nowadays is on Dutch farms in the Transvaal and Orange Free State, where a head or two may be shot by paying a handsome fee to the owner of the land. These blesboks are usually stalked with a trained horse, behind which the gunner shelters himself, until he has got within shot of the herd. Blesboks were, however, always extremely wary creatures, and their stalk at the present time is a matter of some skill and difficulty.

Blesboks were to be found in the good days, like the springboks with which they were and still are often intermingled, in immense herds, numbering in the aggregate, over a fair tract of country, tens of thousands. In the same country were usually to be seen black wildebeest (white-tailed gnu), quagga, Burchell's zebra, ostriches, and hartebeest. The Vet River, a tributary of the Vaal, in the centre of the Orange Free State, seems always to have been a very favourite headquarters of these antelopes. Harris in 1837, for instance, thus speaks of this locality :—

“We passed over a low tract about eight miles in extent, strongly impregnated with salt, and abounding (it was then the wet season) in lakes

and pools. The number of wild animals congregated on this swampy flat almost realised fable, the roads made by their incessant tramp resembling so many well-travelled highways. At every step incredible herds of bontebucks,¹ blesbucks, and springbucks, with troops of gnus and squadrons of the common or stripeless quagga, were performing their complicated evolutions; and not unfrequently a knot of ostriches, decked in their white plumes, played the part of general officer and staff with such propriety as still further to remind the spectator of a cavalry review."

And again Gordon-Cumming, some nine years later, in 1848, thus describes the same country :—"When we came to the Vet River, I beheld with astonishment and delight decidedly one of the most wonderful displays which I had witnessed during my varied sporting career in Southern Africa. On my right and left the plain exhibited one purple mass of graceful blesboks, which extended without a break as far as my eyes could strain : the depth of their vast legions covered a breadth of about six hundred yards." Elsewhere Gordon-Cumming thus describes these antelopes :—"Throughout the greater portion of the year they are very wary and difficult of approach, but more especially when the does have young ones; at that season, when a herd is disturbed, and takes away up the wind, every other herd in view follows it, and the alarm extending for miles and miles down the wind, to endless herds beyond the vision of the hunter, a continued stream of blesboks may often be seen scouring up wind for upwards of an hour, and covering the landscape as far as the eye can see."

These pictures may seem incredible; yet, such was the enormous plenty of wild animal life on the plains of the Orange Free State and Transvaal in those days, they were, in every circumstance, true enough. I have conversed with English and Dutch hunters, who remembered well the Free State in those glorious days of the past, and their statements

¹ Here, undoubtedly, as Mr. Selous shows in his article on the Bontebok, Harris confused blesbok with bontebok. There were no bontebok in this region, and Harris saw in reality only blesbok.

absolutely bear out the reports of Cornwallis Harris and Gordon-Cumming. Such was the profusion of game that it seemed impossible—as these men have assured me—that these throngs of animals could ever be exterminated.

Yet the impossible has come to pass, and even the teeming blesboks have been well-nigh cleared from those high and healthy pasture-lands which for long ages of the past they must have so greatly adorned. Undoubtedly the Dutch farmers of the Orange Free State and Transvaal have been the chief actors in this miserable story of extermination. In the first instance, on entering these new countries they shot game to support themselves, their families, and servants, and for the pure pleasure of hunting. But, so soon as they found a market for the skins of the game animals around them, they became mere hide-hunters, and shot, week in week out, for the mere value of the pelts. And thus, for the paltry reward of a miserable shilling or two per skin, has the beautiful blesbok been brought at the present day to the verge of extinction. I myself have seen, three-and-twenty years ago, the waggons rolling down country to Port Elizabeth from the Orange Free State and Transvaal loaded up with the dried skins of blesbok and springbok. And any middle-aged London hide-broker will tell you that from five-and-twenty to forty years ago tens of thousands of blesbok skins, among the pelts of other South African animals, were annually disposed of at the Mincing Lane Sale Rooms.

In the whole of the Orange Free State and Transvaal there are now remaining probably not more than 3000 head of these once innumerable antelopes; probably 2000 head would be nearer the mark. In the western Transvaal, upon a few farms, fair herds are to be found, as also in places in the Orange Free State. These are, as I have said, partially protected. In 1890, towards the end of the year, I saw a respectable herd of blesbok on one of these Transvaal farms, which I believe is still in existence. But the tendency is, unfortunately, to allow picked specimens to be shot by sportsmen desiring heads—for a pecuniary consideration—and it is to be

feared that blesboks will continue to decline gradually in numbers until they become extinct.

These handsome and most characteristic antelopes always run right in the teeth of the wind, and, when at speed, usually carry the head very low—so much so that they have been compared by Cornwallis Harris to a pack of harriers in full cry. They are among the swiftest of all the antelopes, surpassing even the fleet and marvellously agile springbok, and rivalling, as some contend, even the peerless tsessebe. In their slow paces they are, like the hartebeest and tsessebe, somewhat heavy-looking and deceptive; but when really extended their action is magnificent, they cover the ground at an amazing pace, and exhibit wonderful staying capacity. The flesh of these antelopes is very good eating. The ewes drop their young ordinarily in the months of September and October.

H. A. BRYDEN.

THE TSESSEBE OR SASSABY (*Damaliscus lunatus*)

Bastard or *Zulu Hartebeest* OF THE BOERS; *Mzansi* OF THE SWAZIS
AND MATONGA; *Inkolomo* OF THE MATABELE; *Tsessebe* OF THE
BECHUANAS; *Inkalwane* OF THE TRANSVAAL BASUTO

The tsessebe, or sassaby, as it is sometimes—but I think incorrectly—written, is one of the larger antelopes to which few sportsmen ever pay much attention, partly on account of the fact that it carries a very poor head, and partly because it “takes it out” of one’s horses too much to race them. The Bubaline antelopes, with their near allies the gnus, belong to the great group of true antelopes, the ring-horned *Bovidae*, the tsessebe being one of a genus comprising many nearly allied species. They differ from the gnus in having longer heads and narrower muzzles, ringed and sometimes lyrate horns, and in the absence of mane on neck and throat. The ears are long and narrow, and thickly covered inside with hair, the

nostrils approximate closely, the sub-orbital gland is small and its position marked by a tuft of stiff hairs. The colour of the tsessebe is a warm red shot with purple and, in some lights, orange, presenting the appearance of shot silk, the purplish bloom on the back deepening almost to black in some individuals; the hair is wonderfully satin-like and glossy. There is a broad dark mark down the face, and the throat and under parts are pale chocolate-red. The young of the tsessebe are bright yellowish red in colour. An adult bull stands 3 feet 10 inches at the withers, but I have measured individuals which have reached 4 feet. As is the case in all the most typical forms of this group, the croup is low in comparison with the shoulders, giving the hindquarters a very sloping, awkward appearance. Horns are present in both sexes. These are sub-lyrate, diverging widely from their bases, and well ringed for two-thirds of their length. The maximum recorded length of bull horns is $15\frac{3}{4}$ inches, with a circumference of $7\frac{1}{2}$ inches; and of cow horns $14\frac{1}{2}$ inches; circumference 6 inches. My two largest pairs are—♂, $14\frac{7}{8}$ inches, circumference 8 inches, and ♀, 13 inches, circumference $6\frac{1}{2}$ inches. This antelope is usually considered to be the swiftest and most enduring in South Africa, and my own experience confirms this; but the red or Cape hartebeest runs it very closely, and so I believe would Lichtenstein's hartebeest, only that the latter has rarely if ever been raced by a mounted man. In point of endurance, as well as in its marvellous tenacity of life, I consider the blue wildebeest is at least the equal of the tsessebe; while for a short distance I believe the impala is swifter than either.

These antelopes are widely distributed through South Central Africa south of the Zambesi,¹ and in the country lying west towards Lake Ngami. They are common in Mashonaland, the Eastern Transvaal, Gazaland, and in the Pungwi district, Portuguese East Africa, where their range appears to overlap that of the Lichtenstein hartebeest. They are partial to open

¹ I have nowhere met them north of the Zambesi.

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downs or thin open forest tracts, but are never seen in densely forested districts.

Tsessebe consort in small herds of eight or ten individuals, but towards the close of the dry season I have seen troops of fully 200 in number. Solitary blue wildebeest bulls are often found amongst the herds of tsessebe, and the latter are then very difficult to approach.¹ In South-East Africa the tsessebe is a regular drinker, but I can imagine that in dry tracts of country they could subsist without water as easily as can the red hartebeests.

Though usually very wary antelopes, they will often give easy standing shots at about 200 yards. They are purely grass-feeders, and in the springtime become excessively fat, and are excellent eating; the fat, however, unless very hot, clogs unpleasantly in the mouth. Tsessebe calves are usually born in September, but I have seen them in the last week in August and in the middle of December.

Many men become enthusiastic over the pursuit of the sable antelope, the koodoo, the eland, and giraffe, to say nothing of the larger and dangerous game, but I have never met with an enthusiastic tsessebe hunter. As I have hinted above, the reason is not far to seek. These antelopes are so swift and enduring that if a man has horses in the hunting veldt, he naturally desires to nurse their strength for more coveted game, and does not care to run them lame for the sake of one after another more or less fruitless tail-on-end chases in pursuit of an animal whose trophies are almost nil. Even the Boers and others, when "hide-hunting," recognise the fact that the pelts are scarcely worth the price they have to pay in horse-flesh to secure them, their nags being almost invariably grass-fed and short in wind. The tsessebe *appears* awkward, particularly in its slower paces, but begin to push them, and *then* see them stretch themselves out; at each stride the

¹ The presence of a single wildebeest in a troop of other game invariably renders the latter shy and disinclined to stand, as they would otherwise do, and as wildebeest do when trooped by themselves.

legs are drawn well up underneath them, and away they go, as smoothly as a machine, covering mile after mile at an unbroken pace, till at the end of six or seven miles the sportsman feels that his horse has had enough of it, while the game is still going as fresh and as strong as ever. On foot I think tsessebe are far easier to bring to bag, as one is content to take the chance they will give of a steady standing shot at 180 or 200 yards. When racing them on horseback a bullet fired over or in front of them will often turn them and enable the rider to cut in, and frequently, if the leader be dropped or turns out wounded, the others become demoralised and bewildered, and can be easily shot. I have usually found, however, that the harder a man rides to them (and to other game as well), the harder they will go, for they become thoroughly alarmed; whereas, if not unduly pressed, they often stand to look round, and thus give the sportsman a chance. Sometimes, however, tsessebe are very foolish, and I can well remember, after having stalked a little herd of seven one evening, and dropping the bull at about 160 yards, that the remainder scarcely moved; I was thus enabled to bring down two cows (the fattest I ever saw), the three lying within a few yards of each other. Had I wanted more I could have easily killed the remaining four, as they made no attempt to run away till I showed myself. As an instance of their tenacity of life, I remember a friend (the late Mr. J. W. Glynn) and myself firing at a bull, and putting six bullets behind the shoulder within an area which we covered with the brim of a terai hat, yet he ran three miles afterwards before we recovered him. We were using ordinary Martini-Henry bullets, which are unsuitable for these antelopes. A Lee-Metford or any good .450 rifle is the best weapon to use. Expanding bullets alone are recommended; the solid long-range bullet is quite ineffectual, particularly if one is on foot.

F. VAUGHAN KIRBY.

THE GNUS OR WILDEBEESTS

Genus CONNOCHÆTES

Gnus are grotesque-looking ruminants, with disproportionately large heads, distinguished from both genera of hartebeests by the tufts of hair on their faces, their maned necks, very broad muzzles, doubly-curved smooth horns, and long, horse-like tails. They further differ by the presence of four teats to the udders of the females, in which respect, as in the form of the horns, they present a superficial approximation to the oxen. Their ground-colour varies from gray to dark brown, with or without transverse stripes, the long hair of the mane and tail being either black or white. The smooth horns are expanded at their bases, then incline outwards or downwards, while their terminal halves are suddenly bent upwards. Two well-marked species, differing widely in the curvature of the horns, may be recognised, the first of these being divisible into three more or less defined local races, often regarded as species.

1. Brindled Gnu (*Connochætes taurinus*).
 - a. Typical race (*C. taurinus typicus*).
 - b. White-bearded race (*C. taurinus albojubatus*).
 - c. Nyasa race (*C. taurinus johnstoni*).
2. White-tailed Gnu (*Connochætes gnu*).

THE BRINDLED GNU OR BLUE WILDEBEEST (*Connochætes taurinus typicus*)

The brindled gnu is much better known in South Africa by its Dutch name, *blaauw wildebeest*, which is, of course, translated by all Englishmen—home-born and Afrikanders—into blue wildebeest. The Hottentot name for the animal was *Kaop*, signifying *Baas*, or master, a name now seldom used. The Bechuana name is *Kokoon*; the Basuto, *Ikokoni*; the Matabele, *Inkōne-Kōne*; the Zulu and Swazi, *Inkongone*; while the Makalakas call it *Ee-vumba*.

The blue wildebeest, as it may be best called, stands from 4 feet 3 inches to 4 feet 5 inches at the shoulder, and in extreme length will measure about 9 feet 6 inches to 9 feet 8 inches. Like its congener the black wildebeest, it is among the most curious and singular of nature's creations. The general colouring of the animal is a bluish drab, strongly marked by lateral brindles or stripes of a much darker shade upon the neck and fore-quarters. The neck is not arched, as with the black wildebeest. The head is heavy, cumbrous, and somewhat buffalo-like, and seems altogether out of proportion to the rest of the animal. The profile is somewhat aquiline, and the fore part of the face covered with thick shaggy black hair. The muzzle is broad, square, and very ox-like. The horns are set horizontally upon the head and bend inwards at the points, much as do those of the buffalo. They are formidable weapons of defence, and although the blue wildebeest is by no means so fierce and sinister a creature as its cousin the black wildebeest, it should be approached with caution, when wounded and at bay, by the dismounted sportsman. Dogs are occasionally killed or badly wounded when baying these animals. The longest pair of horns of the blue wildebeest, registered by Mr. Rowland Ward in his *Records of Big Game*, measures $31\frac{1}{4}$ inches over the curve. The widest palm measurement is $13\frac{1}{4}$ inches, while the widest measurement between the tips of the horns is 21 inches. A fair average bull's head may be put down at from 19 to 20 inches over the horn curve. The neck of the animal is surmounted by a long black mane, partially upstanding, partially pendent. This copious mane continues a little beyond the withers. The chin is covered with more of this thick and shaggy black hair, which extends down the dewlap as far as the breast. The animal is further distinguished by a long flowing black switch tail, reaching nearly to the ground. The ears are fairly large and pointed, while the eyes are set very high up in the head. The body of this wildebeest slopes from the withers towards the rump, and the animal has a somewhat mulish appearance. The legs are those of a

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true antelope, slender, clean, and very shapely, and ending in longish, rather narrow, but extremely neat hoofs. Between and at the top of the division of the hoofs, in front, grows a curious brush of rufous-coloured hair. From its somewhat heavy, ungainly head, which the blue wildebeest carries, especially in its faster paces, very low, and from the masses of hair and mane about the head and fore parts, the animal has a very cumbrous appearance, and when first seen it is difficult for the hunter to believe that it possesses the pace, activity, and staying powers with which it is usually credited. As the animal moves off after a curvet or two, a few kicks, a toss of the head, and a flourish of the long black tail, its slower paces seem heavy and laboured. It is, in truth, just about as deceptive a beast of chase as the hartebeest. The blue wildebeest is, as a matter of fact, one of the swiftest animals in South Africa; it can stay everlastingly, it is extremely tenacious of life, and even with a broken leg, or a bullet through the body, will gallop clean away from the mounted hunter and make good its escape.

The blue wildebeest is gregarious and usually runs in troops of from twenty to fifty. In country where they have not been much molested, as, for example, some parts of the vast, unhealthy, and little-known territory of South-East Africa, lying between the Zambesi and Pungwe Rivers, many large troops may be seen feeding together upon the plains, so that several hundred head may be occasionally in sight. During the winter season the bulls will be often found ranging together, apart from the cows and younger animals, in considerable troops.¹ A collection of these big full-grown bulls, with their heavy Roman-nosed heads and wild, cumbrous, and fantastic appearance, is, when going at full gallop, a fine sight. When hotly pursued, the troop usually strings out somewhat, not quite in single file, but in a longish line. Even a well-mounted hunter has, upon open plains, where these wildebeest are often to be found feeding, occasionally a somewhat difficult task to bring one of these

¹ At this time the cows are in young.

animals to bag. With such fleet and enduring animals it is useless to attempt to run them down in a severe tail-on-end chase, in which the hunting pony is certain to get the worst of it. If it were not for one or two rather stupid habits of these animals, it would, indeed, be often a difficult matter to circumvent them. But even on a wide, open plain the mounted man can, if the wildebeest have not gained too great a start, easily turn them from their course by sending a bullet over their heads. So soon as the missile strikes up the sand in front of them, the leaders of the troop wheel round and often head in a nearly contrary direction, thus affording the hunter a fair chance. I have turned a large troop in this way two or three times in a single early morning run, even when they were nearing the bush for which they were heading, and have thus been enabled to obtain a fair shot and bring down the head of game I wanted. In country where a certain amount of shooting goes on (and unfortunately too many natives have guns nowadays, even in the most remote places), blue wildebeest, if a river is near, usually drink during the night, cross the plains at early morning, and feed on the far side near the bush in which they take shelter when pursued or during the heat of the day. If the hunter quits his waggon or camp very early, he will probably find the troop feeding towards seven o'clock A.M. not far from the fringe of this bush. If, on sighting the game with his glass, he takes a big sweep, he will most probably be able to place himself and his after-rider between the still-unsuspecting game and the line of bush. Then, showing himself, he will find himself placed at a singular advantage. The wildebeest become flurried, and at once make a dash for the nearest point of bush. They are intercepted by one of the two mounted men and driven from their point. They turn, race round in a semicircle, and try for another part of the bush. Again they are headed off, and at length losing their heads, after dashing hither and thither in a vain attempt to make good their point, and becoming for the time completely out-manœuvred, they finally make good the

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shelter of the bush at a more distant angle, leaving one or two of their number down, and perhaps another badly wounded. In regions where they are little molested the hunter is, especially in thickly-bushed country or open park-like forest, enabled to shoot blue wildebeest more easily than upon flat open plains. He can avail himself of cover, and not seldom encounters the game within comparatively short range. Stalking on foot after these antelopes is seldom practised in South Africa, where horses can in most cases be employed for hunting purposes. It is desperately fatiguing work, and the gunner is hardly likely to make any considerable bag among such alert, suspicious, and fleet game as these animals. In East and Central Africa, where horses are unable to be utilised, these antelopes are occasionally shot by the foot hunter, but, from the accounts of Mr. F. J. Jackson, one of the best known and most experienced sportsmen in East Africa, these antelopes are most difficult to bring to bag. The blue wildebeest possesses an even more than average share of the vitality for which nearly all African antelopes are famous, and unless hit in the right place—through the heart, lungs, or liver—will very frequently, although most severely wounded, make good its escape. I have shot a blue wildebeest bull right through the lungs, have found quantities of blood-spoor and patches of lung coughed up by the animal, and yet, after following up the wounded beast for miles, have had to abandon the chase to my bushmen trackers. The flesh of the blue wildebeest is, even to a man with whom meat is not plentiful, very poor, and the English hunter will seldom care to touch it if he can procure other venison. The head, however, forms a handsome if somewhat bizarre trophy, and is well worth securing.

The cows of this antelope usually calve between the beginning of September and early in November—that is, in the countries south of the Zambesi. By the latter month the rains are near at hand and the fresh vegetation is almost due.

In the old and good days of South African hunting, the blue wilde-

beest ranged freely between the Zambesi and the Orange Rivers in parts of the country suited to its habits—that is, in nearly all regions except mountainous, heavily forested, or absolutely waterless country. It is quite certain that although not commonly found south of the Orange River, occasional stragglers were in the habit, forty or fifty years ago, of crossing that stream and wandering, in company with the vast multitudes of other game, on the karroo plains to the southward. Gordon Cumming in his well-known book, *The Lion Hunter in South Africa*, mentions the fact of a blue wildebeest bull having been shot and brought to his camp in this part of Cape Colony. This old bull had been found and killed by Cumming's Hottentot hunters in a most singular manner. It had, manifestly while fighting with some opponent, managed to hook one of its fore-legs over its horn, from which awkward position it was unable to extricate itself. It had thus fallen an easy prey to the Hottentots. Elsewhere Cumming mentions that his hunting friend, Paterson, had bagged a bull of this antelope, "which last animal," says Cumming, "is rather rare in these parts," *i.e.* in the north of Cape Colony.

At the present day the blue wildebeest is first found in the western portions of British Bechuanaland, bordering upon the Kalahari Desert. Beyond these—north, east, and west,—in North Bechuanaland, Ngamiland, Rhodesia, Portuguese West and South-East Africa, Ovampoland, and Damaraland,—it is to this day a common enough antelope. In some places, especially in South-East Africa, it is still exceedingly numerous, and is at times found in great numbers. Its range extends some way north of the Zambesi into Central Africa, as far certainly as Lake Nyasa. In parts of Nyasaland and in East Africa it is replaced by two very closely allied races, the Nyasaland Johnston's wildebeest and the white-bearded gnu, which are treated elsewhere in this volume. The ordinary blue wildebeest ranges in West Africa as far north as Benguela, where it is common, and where specimens have been shot in recent years.

H. A. BRYDEN.

THE WHITE-BEARDED BRINDLED GNU (*Connochaetes taurinus albojubatus*)

IN BRITISH EAST AFRICA

SWAHILI NAME, *Nyambu* ; MASAI NAME, *Oangat*.

The wildebeest of East Africa is, as its scientific name implies, the white-bearded variety, a local form of the brindled gnu. In British territory, which is undoubtedly its headquarters, its range is a somewhat limited one, and certainly well defined, beginning as it does on the Rombo plains between the upper waters of the Lumi and Useri Rivers, which rise on the north-eastern slopes of Kilimanjaro, and extending northwards as far as, but no farther than, the Athi plains.

In German territory it extends farther south, and I have myself seen and shot it about 15 miles below Arusha wa Chini, on the banks of the Ruvu River ; but I am unable to say how much farther still it extends. In the country lying between Kilimanjaro and the Kyulu hills there are great numbers, but in no place is it so numerous as on the Athi plains, where about August it assembles in very large herds. In August 1890 Dr. Mackinnon and I saw one herd in which there could not have been less than 1500 beasts, no doubt an exceptional number, as they are rarely seen in herds of over 100, from 20 to 60 being more usual. This immense herd was composed, at least nine-tenths of it, of cows with calves, which kept close together in a compact mass, so much after the manner of the buffalo, that, when first seen, the Doctor and I both mistook them for those animals ; and it was not until we got much nearer that we found out our mistake. Outside this "pack," and all round it, at distances of 50 to 100 yards, stood the bulls as sentinels. Stalking was out of the question, so we walked straight up to them, and I shall never forget the noise they made as they thundered off in a thick cloud of dust on

the Doctor firing the first shot, and the curious, somewhat querulous, gruntings of the calves calling for their mothers, lost in the confusion of the stampede. This grunting continued for several minutes after the herd pulled up, and only subsided when both mothers and young had found each other, when all was quiet, excepting the snorts of the outstanding, defiant-looking bulls. Single bulls are often seen quite alone and at other times associating with antelopes and gazelles, particularly with *G. granti*. The wildebeest is a lover of the rolling open plains, but in places where it is not much disturbed it is also found in thinly timbered country. In such places it is not difficult to approach within



FIG. 23.—White-Bearded Gnu, or Jackson's Wildebeest. Photographed by Lord Delamere in the British East African game preserve.

fair rifle-shot: I do not mean of modern .303 Mannlichers and Mausers, which nearly every one now uses, and with which so many present-day sportsmen think they are justified in blazing away at everything they see at 300 yards and upwards, entailing a fearful amount of wounded beasts, which either become food for the vultures by day and hyænas by night, or limp about for the remainder of their existence on three legs. By "fair rifle-shot" I mean 120 to 180 yards.

On the open plains stalking in the ordinary sense of the word is almost out of the question, and, when these animals have been much shot at, quite hopeless. In places where they are rarely disturbed they will often stand and allow the hunter to approach within 120 to 150 yards, provided he

does not walk straight for them, but pretends to walk past, gradually sidling in nearer as he proceeds.

On my way down country a short time back, September 1898, I crossed over the Athi plains between Kikuyu and the river, which for the last three years has been a "Reserve" in which shooting is strictly prohibited, excepting lions and other carnivora. As I walked along, wildebeest, *Gazella granti*, and *thomsoni* were on all sides of me, and were so close and confiding that they reminded me of Kilimanjaro in the palmy days of 1887. Three ostriches even stood and looked at me within 300 yards, and every creature seemed to know that it was perfectly safe. Directly I crossed the river, however, where shooting is allowed, and where every one going up and down the road appeared to have done his best to make up for lost time—the empty cartridge-cases alone proved this—all the game, even the confiding little *G. thomsoni*, was so wild that I could not get within range of anything excepting a large bustard, which I missed. As I take it for granted that every sportsman would wish to add one or two of these absurdly grotesque-looking gnu heads to his collection of trophies, in the event of his not having the good luck to find them in open bush country, I would strongly recommend him to try a drive. In open bush country he should have little difficulty in circumventing them by a fair stalk. But on really open plains he may find them quite unapproachable, and, then, rather than run the risk of merely wounding the game by long shots (distances being very difficult to judge and modern bullets being greatly affected by the strong winds usually prevailing), a drive is preferable. With a few extra men besides his gun-bearers, it is not a difficult thing to manage, as there are always enough ant-heaps scattered about to afford sufficient covert, and the gunner only has two things to remember; the one is always to have the game driven down or across the wind, the former for choice, the other that he and his gun-bearers must take up their position without being seen. Owing to the usually

undulating nature of the ground he should have little difficulty in doing this. A gun-bearer should be posted on each side of him and about 300 to 400 yards off to act as stops, but should not show themselves, unless the game is coming towards them and likely to pass out of range of the hunter, who, when once the game is in sight, must lie absolutely still, however uncomfortable he may feel. The men told off to drive—six to a dozen are quite enough—should be instructed to keep well in line, and a fair distance apart (otherwise the game may break back), and to walk *slowly*, so as not to hustle and flurry the beasts. When they see that the game is getting near the sportsman they should stop altogether, and the wildebeest will most probably pass him in single file. If this is not done the game will perhaps go past with a rush, and it will be impossible for the gunner to distinguish a bull from a cow when all are jumbled up together. To my mind there is nothing so exciting as a drive, as the



FIG. 24.—Skull and Horns of White-Bearded Gnu.

suspense is little else than awful; but at the same time I do not think it is justifiable unless the beasts are otherwise unapproachable, as it makes the game so wild. Should a drive be impracticable, then the only thing to do is to adopt the bushman's stratagem, and use an imitation ostrich, for the construction of which, and how to use it, see the *Big Game* volumes of the Badminton library.

The measurements and weight of an old bull in good condition are as follows:—Total length, 8 feet 1 inch; height at shoulder, 4 feet $4\frac{1}{2}$ inches; tail, 1 foot $9\frac{1}{2}$ inches; weight, 475 lbs. The best recorded pair of horns measure $27\frac{1}{2}$ inches; "widest outside," 22 inches over the front curve, and 6 inches in breadth of palm.

F. J. JACKSON.

THE NYASALAND GNU (*Connochaetes taurinus johnstoni*)

Native name generally *Nyumbo* amongst the A-nyanja, and the same or a similar word amongst the Wa-yao.

This variety or sub-species of the brindled gnu (or "blue wildebeest") was first described by Mr. Sclater from specimens sent home by myself and others from Nyasaland in 1895 and 1896. These specimens and a valuable photograph taken by Mr. James Harrison, an English sportsman, sufficed to establish clearly the almost specific differences between the gnu of Nyasaland and the ordinary type of brindled gnu in South and East Africa. The first specimen was killed by Mr. H. C. Macdonald of the British Central Africa Administration.

In size the Nyasaland gnu is about the same as the ordinary blue wildebeest—that is to say, about 4 feet in height at the shoulder. The head is proportionately somewhat longer. The general colour of the body is rather browner than in the case of the male of the ordinary brindled gnu. The ears also are longer, the horns possibly a little more rounded. There does not appear to be anything like the same development of long hair on the bridge of the nose, but the breadth across the nostrils and round the muzzle is apparently more exaggerated than in the ordinary species. The most distinguishing mark is the white chevron across the ridge of the nose, just below the line of the eyes. This is the most characteristic feature in the Nyasaland gnu, and apparently is not met with in any other species of this antelope. It recalls a similar marking present in certain species of *Bubalis* and *Damaliscus*, such as the *B. cama* and *Damaliscus hunteri*.

It is possible that the present habitat of the Nyasaland gnu is limited to a small area in South-East Africa, partly in British and partly in Portuguese territory, bounded on the north by Lake Nyasa, on the west by the River Shiré, on the south by the Zambesi, and on the east by the Makua

country of Mozambique. The places where it has been actually shot are (1) on the plains round Lake Chilwa ; (2) on the Elephant marsh near Chiromo ; (3) near Mount Chipirone. The gnu is also met with in West



FIG. 25.—Head of Bull Nyasaland Gnu.

From Sir H. H. Johnston's *British Central Africa*, published by Messrs. Methuen.

Nyasaland and on the River Luangwa, but this may be the ordinary brindled gnu. The Nyasaland gnu generally goes in small herds and frequents the plains, and not the hilly districts.

H. H. JOHNSTON.

THE WHITE-TAILED GNU, OR BLACK WILDEBEEST (*Connochætes gnu*)

Gnu OR *Gnoo* OF THE HOTTENTOTS; *Zwart Wildebeest* OF THE
CAPE DUTCH.

The white-tailed gnu is known almost universally in South Africa by the name—wildebeest or wild ox—bestowed upon it some two hundred years ago by the Boers when, as they moved inland from Table Bay, they first encountered it. After the brindled gnu, or blue wildebeest, was discovered in the early part of this century, the Dutch hunters differentiated the two species by christening the white-tailed gnu the *zwart*, or black, wildebeest, and the brindled gnu the *blaauw*, or blue, wildebeest. The black wildebeest, the subject of this article, has derived its European name gnu from the word *gnoo* or *gnu*, by which, from time immemorial, it was known to the Hottentots.

The South African Dutch colonists, when they first encountered this, the strangest, wildest, and most eccentric-looking of all the antelopes, had, undoubtedly, some reason for christening it wildebeest, or wild ox. Both the wildebeests, although true antelopes, bear certain strong points of resemblance to the bovine race, and may be looked upon as connecting links between the two groups. The adult male of the white-tailed gnu stands about 4 feet at the shoulder and measures about 9 feet in extreme length. The general body colour is dark brown. The frame is shapely, strong, and muscular; the neck thick and arching, and surmounted by a full, creamy-drab, upstanding, hog mane. The body, and especially the quarters, are, as old hunters often observed, somewhat like those of a small well-bred pony. The legs are thoroughly antelopean, fine, clean, hard, and beautifully slender. The hoofs are somewhat narrow and pointed, and the spoor of a black wildebeest may be readily identified by any one conversant with the footprints of the numerous South African antelopes. The head is distinctly

ox-like—almost buffalo-like—and is heavy and menacing. In the centre of the face a thick brush of long black hairs bristles outwards, and there is more of the same bristling hair beneath the eyes, and under the jaw and throat, as well as between the fore-legs and upon the fore part of the chest and belly. The ears are short and pointed. The muzzle and nostrils are broad, flattened, and very bovine. The mammae, like those of the cow, are four in number. The eyes, again, are distinctly bovine, but wild and fierce-looking, like those of an excited ox; they are surrounded by long white bristles, which are found also upon the nostrils. The horns at the base are strong and thick; they bend down suddenly over the eyes and then turn as suddenly upwards in a sharp hook. The best recorded pair of horns of this antelope measure, over the curve, $30\frac{7}{8}$ inches. An average good head would measure about 24 inches, have a palm breadth of 8 inches, and extend from tip to tip about 15 or 16 inches. Few animals use their horns more freely or knock them about more. Black wildebeest bulls seem to be incessantly fighting or sparring with one another. When they are not engaged in this occupation they may be often seen, especially if startled or alarmed, down on their knees, frantically ploughing up the hard dry earth with their hook-like horns. The consequence is that, after four or five years, the horns of the males become more worn and battered than is the case with any other kind of antelope. The wildebeest knows extremely well how to use its horns in defence or attack, and many a good dog and not a few human beings have been killed or badly gored by these formidable weapons. In captivity the black wildebeest is one of the most treacherous and unreliable of animals, and a good many accidents, sometimes fatal ones, have happened with these animals. The tail is long, full, and sweeping, and of a yellowish-white colour. The black wildebeest is in its behaviour one of the oddest, most capricious, and most fantastic of all wild creatures. Even in captivity it is singularly restless, whimsical, and freakish. It appears ready to start even at its own shadow, and its sudden

and fantastic antics and capers are always a source of wonderment to the onlooker. Looking at this most singular animal, one might well compare it at one and the same time with four different animals, the buffalo, the ox, the antelope, and the pony. The heavy, fierce, savage-looking head reminds one of the buffalo ; the arched neck, hog mane, neat body and quarters, and sweeping tail resemble a pony ; the slender yet wiry legs are truly antelopean ; while the eyes, mouth, and nostrils are wonderfully like those of a domestic ox.

Until forty or fifty years ago, the white-tailed gnu, although, like many others of the South African fauna, singularly and capriciously restricted as to its habitat, was to be found on one of its chosen headquarters, the karroos or vast open plains of the Cape Colony, in almost incredible numbers. In fact, if it had not been for a devastating disease known as the "brand-sickte," or burning sickness, which periodically thinned the herds of these and other game, their numbers would have been far too many even for that vast country to have supported. In the old days, before the Boers began to push their way northward, and with their death-dealing *roers* or smooth bores to scatter destruction everywhere, the numbers of these animals in the Cape Colony must have been immense. Down to the year 1850 an immense amount of slaughter had been performed by the Dutch hunters and farmers for something like eighty or a hundred years among these and other creatures. Yet even in Gordon Cumming's time (1843), and later, great herds of these antelopes, with much other game, still roamed the northern plains of the old Colony. The range of this wildebeest never seems to have extended eastward in the Cape Colony beyond the Kei River. The animal was found also in the territory now known as Griqualand West, just north of the Orange River, and, in immense numbers, in the Orange Free State, where to-day the poor remnants of its once innumerable legions are still to be found, eking out a precarious existence on two or three Boer farms, where they are more or less carefully protected. North of the Vaal

River, the black wildebeest seems only very occasionally to have been met with, nor does it seem to have been known at all in the countries of the Southern Bechuanas. It may, however, be mentioned that Cornwallis Harris did in 1837 find a few of these animals on the Chonapas, now known as the Mooi River, some twenty or thirty miles north of the Vaal. The black wildebeest seems, however, to have seldom ventured more than thirty miles beyond their usual northern boundary on the last-named river.

All travellers at the Cape, from Sparrman, the Swedish naturalist, who



FIG. 26.—White-Tailed Gnu (*Connochaetes gnu*) in Mr. C. D. Rudd's park at Fernwood, Newlands, near Cape Town.

journeyed there in 1772, downwards, noticed with surprise and wonder the extraordinary figure and still more extraordinary evolutions of these strange antelopes. In 1843-44 Gordon-Cumming spent much of his time in hunting the then abundant game upon the karroos of the northern portion of Cape Colony. He gives a very exact and interesting picture of the white-tailed gnu. "Wheeling about in endless circles," he says, "and performing the most extraordinary variety of intricate evolutions, the shaggy herds of these eccentric and fierce-looking animals caper and gambol round the hunter on every side. While he is riding hard to obtain a family shot at

a herd in front of him, other herds are charging down wind on his right and left, and having described a number of circular movements, they take up positions upon the very ground across which he rode only a few minutes before. Singly and in small troops, the old bulls may be seen standing motionless during a whole forenoon, watching with a philosophic eye the movements of the other game, eternally uttering a loud and snorting noise, and also a short, sharp cry which is peculiar to them. When the hunter approaches they begin prancing and capering, and pursue one another at the utmost speed. Suddenly they all pull up together to overhaul the intruder, when two bulls will often commence fighting in the most violent manner, dropping on their knees at every shock; then, quickly wheeling about, they whirl their tails in a fantastic flourish and scour across the plains enveloped in a cloud of dust."

There seems to be little doubt that these animals were strongly affected by the colour of red. When nearing these antelopes the old Cape hunters used to hoist a scarlet cloth at the top of a long pole. At sight of this thegnu would, says Pringle, a well-known and reliable Cape writer in the early part of this century, "caper about, lashing their flanks with their long tails, and tearing up the ground with their hoofs as if violently excited, and ready to rush down upon us, and then, all at once, when we were about to fire, they would bound away, and again go prancing round us at a safer distance."

The flesh of the black wildebeest is not by any means good eating. It has often been compared with extremely poor beef, to which the flesh of its relative, the blue wildebeest, also bears some resemblance. In the quite young animals the flesh was somewhat more palatable, but wildebeest venison is almost entirely lacking in the excellent gamelike flavour of many others of the South African antelopes. This animal was always, in the days when all kinds of game checkered the heath-like karroos of Cape Colony and the grassy plains of the Orange Free State, singularly attached

to the company of two other species, the quagga and the ostrich. Troops of these three denizens of the veldt were almost invariably to be observed feeding together. It is a curious fact that the blue wildebeest shows an equal attachment to the company of the Burchell's zebra, and that, even at the present day, these two animals may constantly be seen together in the hunting-grounds of the far interior. Even when the game is disturbed I have seen Burchell's zebras and blue wildebeests racing together over the veldt in close company. Occasionally the ostrich also may be seen feeding quietly in the close neighbourhood of blue wildebeest and Burchell's zebra.

The speed of the white-tailed gnu is very great, and it is possessed of excellent staying powers. It is, however, a very conservative beast, and having once attached itself to a particular part of the veldt will return again and again to the same piece of ground. At the present day, when pursued, it seems to know almost to a nicety what distance it may with safety keep between itself and its pursuer, and except by stalking, and then only with the greatest care and precaution, can a good head be obtained. There is an exception, however, to this rule. Mr. J. G. Millais,¹ who has had the most recent experience with these antelopes on a preserved farm in the Orange Free State, mentions that they can be sometimes easily shot, on their approach to water, by a hunter lying concealed, and that in comparatively recent times no less than twenty-seven head of these rare creatures were thus wastefully slaughtered in a single night by a gunner who had secured himself from observation. This had happened, not long before, on the very farms to which Mr. Millais had resorted for the purpose of shooting a specimen or two, and after that occurrence, the old Boer, to whom the land belonged, determined to preserve the remaining members of the herd left to him. This old Dutchman, Mynheer Piet Terblans, one of the original *Voer Trekkers* of the Free State, has succeeded so well in

¹ For much recent and most interesting information on these animals see Mr. J. G. Millais' *A Breath from the Veldt*. H. Sotheran, 1895.

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this excellent determination that he has—or had, two or three years since—more than two hundred head of these now extremely scarce antelopes running wild upon his farms. There are two other farmers in the Orange Free State by whom black wildebeest are also preserved; but the total number now existing in the whole of South Africa is probably now well under 600 or 700 head. Until a few years since there used to be one small herd also preserved on a farm near Victoria West in the Cape Colony. The last reports I had of this troop were, however, not very encouraging; the herd was dwindling from in-and-in breeding, and I fear has now become quite extinct. It is sad to reflect that of all the tens and hundreds of thousands of these antelopes to be found throughout the plains of Cape Colony and the Orange Free State fifty years ago, there now only remains a miserable remnant of five or six hundred head, preserved with difficulty on the farms of two or three Free State Dutchmen. During the last ten years or so, several living specimens of these antelopes have been imported to Europe. It has been found that they breed well in captivity, and there are now in this country and upon the continent a fair number of black wildebeest. This is very encouraging, and if the two or three Orange Free State farmers would give their remaining stock a chance, the race might, without doubt, be saved from the fate of utter extermination—a fate which seems almost certain to overtake it in the next few years. But, unfortunately, few Dutch farmers in South Africa are proof against the temptation of a pecuniary bribe. These Boers find that they can easily obtain from rich men at Johannesburg and elsewhere £10 and more for the privilege of shooting—or having shot for them by the farmer's more practised son—a single head of these rare animals. The bribes are, as I happen to know, being pretty freely offered and accepted, and the preserved wildebeest are thus gradually being reduced in numbers; so that, within ten or fifteen years' time, they are, I fear, likely to have become nearly extinct. In addition to this temptation, a head or two of these protected

gnu is every now and again poached. South African pastoral farms are very large—often more than 10,000 acres in extent—and it is a difficult and costly matter to patrol so large an extent of country. Only a year or two back, some men with rifles—I cannot call them sportsmen—shot, without leave, several black wildebeest on one of these protected farms in the Orange Free State. I am glad to be able to mention that these depredators were identified and heavily fined—if I remember rightly, to the value of £10 a head for every animal slaughtered. But the infliction of fines, however heavy, is quite useless towards the restoration of a rare and vanishing species such as this. The white-tailed gnu in its wild state and upon its own plains, where for tens of thousands of years it has disported itself in the perfection of unrestricted freedom, is, I fear, doomed, like the now extinct quagga, to disappear, destroyed, practically within a short century, by the wanton, wasteful, and utterly short-sighted methods of the Cape Dutch farmers. In the old days in Cape Colony the frontier farmers shot black wildebeest and quagga principally for the purpose of supplying their Hottentot herdsmen and servants with a food supply, and thus saving their sheep and goats. They themselves and their families existed on a better and more dainty kind of venison, the flesh of springbok, hartebeest, gemsbok, or other antelopes. They also shot these animals for their skins, which they required for ropes, halters, sacks, *riems*, harness, whips, and other gear. Under this free-and-easy system the game of Cape Colony soon began to vanish. But it remained for the wasteful farmers of the Transvaal and Orange Free State to become mere sordid skin-hunters, and to destroy millions of animals for the paltry value of their hides. These hides were sent down country and shipped to Europe. In forty years even the once apparently inexhaustible herds of the Free State and Transvaal became shot out, and these countries are now all but devoid of the noble game that once gave life and beauty and a perfectly unique charm to many an otherwise dreary landscape.

H. A. BRYDEN.

THE DUIKERS

Genus CEPHALOPHUS

Although the name duiker (diver) properly belongs to a single South African species, it is commonly applied by naturalists to a number of allied antelopes, collectively constituting the genus *Cephalophus*. Together with the four-horned antelope (*Tetraceros*) of India, this genus represents a separate sub-family of antelopes, the *Cephalophinae*, with the following leading characteristics. The species are of small or medium size, and have the muzzle naked, large face-glands of a more or less elongated form, a moderately long tail, well-developed lateral hoofs, and no tufts of hair at the knees. The upper cheek-teeth differ from those of either of the three foregoing genera of antelopes in the shortness of their broad and squared crowns; and there are four teats to the udder of the female. In the skull there are large pits for the reception of the face-glands; and the horns are short, straight, and generally present in both sexes, although smoother and more slender in the females than in the males. The duikers, all of which are confined to Africa south of the Sahara, differ from the four-horned antelope in possessing only two horns, which are continued upwards nearly in the plane of the face, and have between them a tuft of long hairs, by which they are sometimes almost completely hidden. It is from this tuft that the scientific name *Cephalophus* (head-crest) is taken. Another very characteristic feature of duikers is the long naked line formed on each side of the face by the openings of the face-glands. There are no pits in the skull above the sockets of the eyes, and no unossified spaces in the neighbourhood of the nose-bones. From their habit of skulking in thick bush (whence their name of bush-bucks) duikers are but seldom seen.

More than twenty different kinds of duikers, ranging in size from a

PLATE VI

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|-------------------------------|-----------------------------|
| 1. Yellow-Backed Duiker Head. | 8. Klipspringer Head. |
| 2. Natal Duiker Head. | 9. Oribi Head. |
| 3. Harvey's Duiker Head. | 10. Grysback Head. |
| 4. Black-fronted Duiker Head. | 11. Steinbuck Head. |
| 5. Red-flanked Duiker Head. | 12. Zanzibar Antelope Head. |
| 6. Blue Duiker Head. | 13. Royal Antelope Head. |
| 7. Common Duiker Head. | 14. Salt's Dik-Dik Head. |
15. Kirk's Dik-Dik.



FIELD
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donkey to a hare, are recognised. These may be arranged in two main groups, as follows :—

A. Bush-duikers, with the horns, which are generally present in the females, pointed, directed backwards parallel to or in continuation with the plane of the nose, the ears rounded, and short or moderate, and the general colour varying from fulvous red, or gray, to black, frequently with dark stripes or other marks.

1. Yellow-backed Duiker (*Cephalophus sylvicultor*).
2. Jentink's " (" *jentinki*).
3. Abbott's " (" *spadix*).
4. Natal " (" *natalensis*).
5. Harvey's " (" *harveyi*).
6. Black-fronted " (" *nigrifrons*).
7. White-bellied " (" *leucogaster*).
8. Bay " (" *dorsalis*).
9. Ogilby's " (" *ogilbyi*).
10. Peters's " (" *callipygus*).
11. Red-flanked " (" *rufilatus*).
12. Banded " (" *doriæ*).
13. Black " (" *niger*).
14. Heck's " (" *hecki*).
15. Maxwell's " (" *maxwelli*).
16. Black-rumped " (" *melanorrhæus*).
17. Uganda " (" *æquatorialis*).
18. Blue " (" *monticola*).
19. Nyasa " (" *lugens*).

B. True duikers, with the horns, which are generally wanting in the females, forming an angle with the profile of the nose, or lying in the same plane as the latter, the ears long and pointed, and the general colour yellow or grayish without darker markings, save a patch on the nose.

20. Crowned Duiker (*Cephalophus coronatus*).
21. Abyssinian " (" *abyssinicus*).
22. Common " (" *grimmii*).

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THE YELLOW-BACKED DUIKER (*Cephalophus sylvicultor*).

Bush-Goat OF THE ENGLISH AT SIERRA LEONE ;

Mbimbi IN LONGOBONDO

This animal stands 34 inches at the shoulder. Its size is large, and the form stout and heavy ; ears short, broad and rounded. "Fur very short on fore-quarters, longer on hinder part of back, but in adults worn off and showing the whitish under-fur or naked skin round base of tail. General colour all over, of face, body above and below, and of limbs, dark blackish brown. Crest, orange or rufous ; little developed in youth and wearing off in old age. Muzzle, cheeks and chin, and extreme tips of ears, whitish. Lumbar region with a broad, pale, yellowish mesial stripe running from the middle of the back on to the loins." "Skull, in proportion to size of the animal, delicate, slender, and elongate. Muzzle tapering, not laterally swollen between the premolars and anteorbital fossæ, which are of medium depth. Mesial notch of palate surpassing anteriorly the lateral ones by about half-an-inch ; these latter comparatively deep and V-shaped."¹ Horns, 6.4 inches in length—divergent, slender, evenly tapering, lying back in or below the nasal profile. Those of male and female almost identical, save that those of the female are smaller in size. This duiker is found down the West Coast of Africa from Liberia to Angola.

PERCY RENDALL.

THE BLACK-HEADED OR JENTINK'S DUIKER (*Cephalophus jentinki*)

This is a large duiker, though smaller than *C. sylvicultor*. It stands .30 inches at the shoulder. "The form stout, ears short, broad, and rounded. Colour of the head, ears, neck all round as far back as the withers, throat, and a narrow sternal line, deep uniform black ; of

¹ These particulars are from *The Book of Antelopes*, by Messrs. Selater and Oldfield Thomas.

body above and beneath, coarsely grizzled gray, the hairs ringed with black and white. Lips, chin, a line all round the fore-quarters separating the black from the gray, axillæ, groins, fore- and hind-legs, whitish, a rather darker mark running across the outer side of the fore-arm. Skull much longer in proportion to the size of the animal than in *C. sylvicultor*."¹ In other respects also it agrees so closely that the two species might have been confused, had the external characteristics not been known. Horns long and tapering, placed in the line of the nasal profile, 6.1 inches long.

Habitat.—Liberia. Mr. F. X. Stampfli, who visited Liberia in 1884 alone, and in 1886 in company with Mr. Büttikofer, has procured this rare animal. He mentions that it was a little below Schieffelinville, in the triangle between the Junk River, the Du Queah, and the Farmington Rivers.

PERCY RENDALL.

ABBOTT'S DUIKER (*Cephalophus spadix*)

This is one of the largest of the duiker group, and is an antelope apparently considerably exceeding in size the common duiker, *C. grimmii*. Very little is known of it among English sportsmen, and no specimen has yet reached this country. Dr. W. L. Abbott, an American traveller, procured the specimen from which this species was established in 1888-9, during a residence in East Africa. The animal was shot on Mount Kilimanjaro, at a considerable altitude. The general colouring is dark chestnut-brown, the chin and throat paler. The horns of the ram secured by Dr. Abbott measure $4\frac{1}{2}$ inches in length. The only known habitat of this species is, at present, Kilimanjaro in German East Africa; but it is probable that further research will establish other localities.

H. A. BRYDEN.

¹ From *The Book of Antelopes*.

THE NATAL OR RED DUIKER (*Cephalophus natalensis*)

Rooi Bosch-bokje (LITTLE RED BUSHBUCK) OF THE BOERS; *Mkumbi* OF THE ZULUS; *Msumbi* OF THE SWAZIS AND MATONGA; *Isikupu* OF THE BASUTO; *Chisimbi* OF THE LOWER ZAMBESI NATIVES

Colour, bright red bay; insides of limbs, throat, and under parts brownish yellow; tail short, black above. Horns, present in both sexes (though I have twice shot hornless ewes), deeply ringed for half their length, rising from the skull in the plane of the frontals; average length, ♂ 3 inches, ♀ 2 inches. Muzzle naked; sub-orbital gland large; ears short and rounded; frontal tuft longer than in *C. grimmi*, and nearly concealing the horns. Shoulder-height, adult ♂ 18 inches, ♀ 19 inches; each stands an inch higher at the croup. Adult rams weigh 26 to 28 lbs., ewes 28 to 31 lbs.

Found throughout the wooded districts of Natal, Zulu- and Swaziland, Transvaal, Mashunaland and up the east coast as far, at least, as 17° south latitude. They are very similar in habits to the bushbuck, only leaving the densest kloofs and wooded tracts in the evenings and early mornings. They associate in pairs, though five or six may be seen feeding together. In the winter they drink once, in the summer twice a day. Their flesh is very palatable, far superior to that of the gray duiker. They are in excellent condition in December and January. They feed on leaves, young shoots, etc., of bushes and shrubs, and eat very little grass; all wild fruits are greedily devoured by them. They are very hardy, easily tamed, and live well in captivity. The young are born in October and November, and are lighter in colour than the adults. Their cry is a sharp whistle, but seldom uttered. When seized they bellow like a bushbuck, and do not bleat like the gray duiker.

They afford excellent sport if stalked in the bush in the early mornings, before they lie down; and amongst bushy kloofs a shot can generally be

obtained at them (with the chance also of a bushbuck) by walking down the sheltered side of a spur, and watching the sunlit spots on the opposite side of the kloof; their bright red fur renders them very conspicuous in sunlight, though almost invisible in shade. When driving a bush, they will keep dogs running round and round for hours on the little tracks, before breaking cover, but as they are clumsy in open ground they are easily bagged when they do come out. I saw one of these antelope dodge a large eagle one day for half an hour. The latter swooped repeatedly, but each time the "msumbi" avoided the stroke by dodging into the low scrub. The eagle then tried to force it into more open ground, and to cut it off from the kloof, and twice knocked it over with a powerful wing-stroke, but the "msumbi" succeeded at last in gaining the deep kloof. They are fairly tenacious of life, but as they give easy chances, a .320 rook-rifle is an excellent weapon to shoot them with, and it does not spoil the meat. Large numbers of these little antelope are killed by leopards.

F. VAUGHAN KIRBY.

Dr. Percy Rendall adds to Mr. Kirby's remarks on this duiker the following particulars:—

The dimensions of three freshly killed adults were—

	♂ inches	♀ inches	♀ inches
Height at shoulder	17 $\frac{3}{4}$	18	16 $\frac{3}{4}$
Circumference of barrel behind shoulder	18 $\frac{3}{4}$	18 $\frac{1}{4}$	17 $\frac{1}{4}$
Point of shoulder to nose	12 $\frac{1}{4}$	14	12 $\frac{3}{4}$
Girth of neck	10	9 $\frac{1}{4}$	9 $\frac{1}{4}$
Nose to tail	36 $\frac{1}{4}$	38	39 $\frac{1}{4}$
Weight	26 lbs.	27 $\frac{1}{2}$ lbs.	25 $\frac{1}{2}$ lbs.

The habits of the lesser red-buck, as the Colonists call it, are very skulking, and it is never found away from the dense bush and undergrowth which fringes the sides of the kloofs or dongas, as the ravines are called which they frequent. Their droppings are found, like rabbits', in circumscribed

areas, and their spoor seems to indicate that even at night they only feed on the outskirts of this cover.

Very good sport used to be obtained with a pack of beagles near Barberton, and I have known as many as three killed by the dogs in one afternoon. Without such aids these little animals may be sought by the sportsman in vain. The locality where I met with this species was the slopes of the Makougwa Mountains in the De Kaap or Barberton district of the Transvaal, on the borders of Swaziland, and one memorable bush-hunt we organised I shall never forget. From thirty to forty Swazis were got together from neighbouring kraals, and in their train about half as many Kaffir curs were mustered. Eight or nine Englishmen of the roving sort, armed with every variety of weapon, we stationed ourselves on each side of the kloofs, beginning as far up as the high wood allowed, and then put the natives into the dense cover and waited to see the results, moving down a trifle in advance of them as they waved their assegais in the air, shouting and yelling, meat-hungry, or beating their cowhide shields with their knobkerries as they cheered on their dogs, forcing their way through the thick scrub. One bush-pig, three red duikers, and several rock-rabbits was the sum total of our bag that day. Shot guns loaded with loopers are the proper weapons for this sort of work, and if not hit far enough forward the buck were quickly overhauled by the dogs. One animal squealed like a rabbit when the dog caught it.

PERCY RENDALL.

HARVEY'S DUIKER (*Gephalophus harveyi*)

Very little is as yet known of this antelope. I have only seen two specimens, one shot by Sir Robert Harvey in the forest of Taveta, after whom the species was named. The head of this one was unfortunately completely smashed by an express bullet. The other was killed by Dr. Abbott in the dense forest on Kilimanjaro, at about 7000 feet elevation.

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This specimen, a male, he skinned entire, and I saw it a few days afterwards.

Messrs. Sclater and Thomas describe it in *The Book of Antelopes* as being in size and colour almost exactly the same as the Natal duiker, that is, a dark ruddy chestnut, but with a brown or blackish blaze on the face, and the horns thick at the base and rough, with a length of about 3 inches. It frequents apparently the densest forests, and cannot be very common, for I was frequently collecting birds in the forest of Taveta, and also spent six weeks collecting in the forest on Kilimanjaro, and never came across one. Going through forest on the banks of the Tana, I once caught a glimpse of a dark red antelope, which might possibly have been this species, as in *The Book of Antelopes* Captain Bottego is mentioned as having obtained it in Southern Somaliland. Mr. Jackson says that it also occurs in a patch of forest near Malindi, on the east coast of Africa. H. C. V. HUNTER.

THE BLACK-FRONTED DUIKER (*Cephalophus nigrifrons*).

CAMEROONS NATIVE NAME, *Ngolo*

This handsome duiker, whose habitat lies near the coast-line of West Africa, from the Cameroons to the Gaboon country, was first obtained by M. du Chaillu as far back as 1856. The skin, however, seems to have lain unremarked in the possession of the British Museum until 1871, when Dr. Gray recorded and established it as a new species. The general colour of this duiker is a bright chestnut. The front of the face, the crest, the feet and tip of tail are black. This duiker is of moderate size, standing 18 or 19 inches at the withers. The horns are very short, extending to scarcely 2 inches in length. The black-fronted duiker is of bush-loving habits, and in general appearance it has a strong resemblance to Harvey's duiker. It is most fully described in *The Book of Antelopes*,

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by Messrs. Sclater and Oldfield Thomas ; but little is known of it from the sportsman's point of view.

THE WHITE-BELLIED DUIKER (*Cephalophus leucogaster*)

Another duiker of moderate size from the Gaboon forest regions of West Africa. General colour rufous, the front of the face somewhat darker. A dark dorsal line runs from the shoulders down the back ; under parts whitish, while the tail also has traces of white ; hams white ; tassel of tail black and white. Little is known of this obscure duiker, which is described by Dr. Gray in the *Annals of Natural History*, 1873, and also in *The Book of Antelopes*.

THE BAY DUIKER (*Cephalophus dorsalis*)

A near ally of the Natal or red duiker. Of medium size. General colour bright rufous, with a well-defined dark line running from the nose to the end of the tail, which underneath is white. The tail shows no sign of a tuft. The best recorded pair of horns of this little antelope are in the possession of Mr. Walter Rothschild and measure $3\frac{1}{8}$ inches in length. There are two races of this duiker, *C. dorsalis typicus*, and *C. dorsalis castaneus*, of which the former has its habitat from Sierra Leone to the Gold Coast, while the range of the latter lies in the Cameroons.

OGILBY'S DUIKER (*Cephalophus ogilbyi*)

A West African duiker, having a wide range extending from Liberia to the Cameroons. Nearly allied to the bay duiker, and, like that species, bright rufous in colour, with a black dorsal line. The face, flanks and limbs are yellowish. A specimen was figured many years ago in Lord Derby's "Knowsley Menagerie," and the animal existed in that collection ;

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but very little is known of it to European sportsmen. In *The Book of Antelopes* the height of a male is stated to be 22 inches ; horns of male, 4 inches ; of female, $1\frac{1}{2}$ inches.

PETERS'S DUIKER (*Cephalophus callipygus*)

Another duiker from the bush and forest regions of the Gaboon, first identified and named by Dr. Peters in 1876. Of medium size ; general colour yellowish brown, rufous towards the posteriors and upon the forehead and crest. Under parts pale yellowish gray ; chin and throat white. A dark dorsal line runs from the withers towards the tail, widening out and covering the tail, hams, and back parts of the legs ; haunches rufous. A rare species, unknown in England, and one specimen only having been procured by Dr. R. Bucholz during a journey in West Africa in 1874.

THE RED-FLANKED DUIKER (*Cephalophus rufilatus*)

This is a small duiker standing about 14 inches only at the shoulder, known in West Africa from Senegambia to the Niger, and probably most plentiful in the bush and forest country of Sierra Leone. The general body-colour is orange-rufous. The front of the face, dorsal stripe, tail and limbs are of a bluish gray, while the crest is black ; the under parts paler ; throat whitish. Several specimens of this elegant little duiker have been exhibited in the gardens of the Zoological Society. It is fairly well known to sportsmen of Sierra Leone, the Gambia, Ashanti and the Gaboon.

H. A. BRYDEN.

THE BANDED DUIKER (*Cephalophus doriae*)*Mountain Deer* OF LIBERIANS

This little antelope measures about 16 inches at the shoulder; the adult male weighing about 40 or 50 lbs. The general colour is pale rufous, with broad black stripes transverse to the long axis of the body. "Face, ears, neck, and shoulders, rufous or chestnut, except the nasal region, which is blackish. Back from withers to rump pale rufous, conspicuously banded transversely with deep shining black. Under surface from chin to tail pale rufous, slightly paler than the ground colour between the bands. Limbs rufous, but with broad black patches on the outer surfaces of the fore-arms and lower legs, and with the phalanges black all round. Heels with large glandular tufts of black hair on their postero-inferior surfaces. Tail rufous, more or less mixed with black above, white below. Horns short, in the same line as the nasal profile; in the male barely 2 inches long, in the female less than 1 inch."¹

The geographical range of this very striking duiker is the interior of the West Coast of Africa from Liberia to Sierra Leone. It was not until 1832 that Mr. E. T. Bennett first drew attention to this species, the flat skins of which had then been received from West Africa. M. Robert of Paris described it under the name of *Antilope zebra*, and in 1838 the late Dr. Gray proposed the name of *Antilope zebra* for this animal, which he had procured from Sierra Leone; but as in 1836 Ogilby had previously named it after his wife "Doria," the name holds good.

It was not until fifty years after this animal had been described from flat skins that Mr. Büttikofer, one of the naturalists of the Leyden Museum, first obtained, during the well-known expedition of 1879, perfect specimens of this duiker on the St. Paul's River. Dr. Jentink informs us

¹ From *The Book of Antelopes*, from which the particulars of this species are mainly derived.

that this animal, the "Mountain Deer," as the Americanised Liberians call it, does not occur in the coast districts, but is found in the mountainous terrain of the interior.

Mr. Büttikofer tells us in his work of 1890 that he first saw a living example of this species in the forest near Soforch Place, and identified it with extreme pleasure as the "Mountain Deer," of which he had heard so much. Here he captured a young one alive and obtained the mother's skull.

In a second expedition Mr. Büttikofer and his companions procured a full series of examples of this striking species, and he then remarked on the fact that the hairs on the hind edge of the tarsus are remarkably developed, and form a kind of brush. One might here draw attention to a similar appendage that is to be found on the hind leg of the Impala (*Æpyceros melampus*).

PERCY RENDALL.

THE BLACK DUiker (*Cephalophus niger*)

Bush Goat OF THE LIBERIAN NEGROES

This duiker is of medium size, and stands about 18 inches at the shoulder; the colour of its body is "uniform dark smoky brown or black, becoming darker on the rump and limbs, paler on the throat and chest. Face fulvous, darkening into rich rufous on the crest; centre of the forehead sometimes brown or black. Ears black-haired externally, rufous internally. Tail black above, but with a whitish terminal tuft. Skull long and narrow; forehead swollen, anteorbital fossæ rather shallow; mesial notch of palate about $\frac{1}{4}$ inch in advance of lateral ones."¹

Temminck mentions that the horns are, in the male, straight and rough at their base, smooth and pointed at their tips, and 3 to 3½ inches in length. In the female barely an inch in length, blunt and rounded.

¹ From *The Book of Antelopes*, to which the writer is indebted for other particulars.

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The habitat of this animal is the west coast of Africa, from Liberia to the Gold Coast.

The Dutch field naturalist Pel, one of the various collectors employed by the Leyden Museum, was the discoverer of this duiker, which he sent home from the Guinea Coast in 1843. This was described by Gray in 1846 under the name of *C. niger*.

In the Knowsley Menagerie in 1846 a living specimen of this species existed, but, with this exception, it has never been brought to Europe alive.

Mr. Büttikofer and his companions obtained many specimens during their expeditions of 1879 and 1886. They found this duiker at St. Paul's River, Junk River, Du Queah River, and Farmington River.

Both European and native reports coincide when the flesh of this animal is discussed. It has a strong, bitter flavour, which they suppose is caused by some particular food it is addicted to.

"Like all other members of this genus it is exclusively an inhabitant of the high forests and bushy woods, coming out at night into the savannahs and plantations to get its food."

PERCY RENDALL.

HECK'S DUIKER (*Cephalophus hecki*)

Of this little duiker, which would seem to be a member of the *monticola* group—of which the blue-buck, *C. monticola*, may be called the type—very little is at present known. Its habitat is described as in Mozambique. Dr. Matschie mentions it in *SB. Ges. Nat. Fr.*, 1897, p. 158, and remarks of it that, like *C. monticola*, it has red legs.

THE NYASA DUIKER (*Cephalophus lugens*)

This recently discovered duiker was brought home by Mr. Alfred Sharpe, C.B., Commissioner and Consul-General of Nyasaland. Mr. Oldfield Thomas has described it in the *Proceedings of the Zoological*

Society for 1898, p. 393, as "a member of the *C. monticola* group (blue duiker), but larger and darker coloured than any in the three species of that group, *C. monticola*, *melanorrhæus*, and *æquatorialis*." The general colour above is dark umber brown; forehead and top of muzzle nearly black; crest, which is much larger than usual in this group, quite black; sides of face brown, the lines over eyes brownish white; neck brown; back darkening posteriorly almost to black. Under surface and inner side of forearms pale mouse-colour; limbs dark brown like the back, not reddish, as in *C. monticola*. These are from Mr. Thomas's descriptions. The female carries horns. The habitat of the Nyasa duiker is described by Mr. Sharpe as Morori, also called Usango, German East Africa. This region is some way north-east of the German frontier of British Nyasaland. The antelope's range is stated to extend to an altitude of about 3000 feet.

H. A. BRYDEN.

MAXWELL'S DUIKER (*Cephalophus maxwelli*)

Fulintongue OF THE LIBERIANS

The Philantomba OF MENAGERIES

This duiker is considerably smaller than *C. niger* or *C. doriae*, and stands 14 inches at the shoulder. Its colour is, from Messrs. Sclater and Oldfield Thomas's description,¹ "uniform slaty brown, becoming paler below and on the inner side of the limbs. Superciliary streaks whitish. Ears small and rounded, behind dark brown. Rump and backs of the hams uniform with the body, except that just at the base of the tail on each side, and on the top of the proximal half of the tail itself, the colour is rather darker. Rest of the tail, above brown, beneath whitish; limbs externally like that of the body. Horns set up at a slight angle above the nasal profile, but not nearly so much as in *C. grimmii*; those of male short (about 2 inches

¹ *The Book of Antelopes*, to which the writer is indebted for his information on this duiker.

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long), thick at base." According to Temminck, those of the female are exceedingly small. "Skull broad and strong, muzzle rather narrow."

"*Habitat*.—Coast of West Africa, from Gambia to the Gold Coast."

This species seems to have a wider geographical range than *C. niger* and *C. doriae*. It was probably figured by Cuvier in 1826 under the name of *Antilope pygmaea*, but the differences will easily be seen by referring to the letterpress under Sir Victor Brooke's article on this subject (*P.Z.S.*, 1872, p. 637).

In 1827, in Griffith's *Animal Kingdom*, Major Hamilton Smith described this animal from a female brought home by Colonel Charles Maxwell, and dedicated it to that gentleman as *Antilope maxwelli*. This species does well in captivity, and the Zoological Society of London have kept and frequently bred it in their gardens. It seems to range from Senegal and Gambia to the mouths of the Niger. In Liberia Mr. Büttikofer says that Maxwell's duiker is unquestionably the commonest species. The menagerie name Philantomba is probably a corruption of the Liberian name Fulintongue. Mr. Büttikofer states that this duiker lives in small troops in bush country, but is very shy, and is generally captured in snares. PERCY RENDALL.

THE BLACK-RUMPED DUIKER (*Cephalophus melanorrhæus*)

GABOON NAME, *Nshiri*

This is a West Coast duiker with a range extending from the Cameroons to Angola, and it is believed right across Africa through Congoland to the East Coast at Zanzibar. The black-rumped duiker stands about 13 inches at the withers, and is of a dull brownish-black colour, darkening to black towards the tail. The under parts are lighter and the backs of the hams are white. The horns are about an inch and a half in length, and both male and female possess them. This diminutive antelope is at present little known to sportsmen.

THE UGANDA DUIKER (*Cephalophus aequatorialis*)

Another very diminutive duiker, measuring at the rump, its highest part, not more than 13 inches. It resembles almost exactly the black-rumped duiker, save that its stomach is of somewhat darker tint. It has been found by Mr. Scott Elliot on the highlands near Lake Victoria Nyanza at an altitude of 4000 feet. The male carries horns measuring about $1\frac{1}{4}$ inches ; the female appears to be hornless.

H. A. BRYDEN.

THE BLUE DUIKER OR BLUE-BUCK (*Cephalophus monticola*)

Blaauw-bok OF THE BOERS ; *Ipiti* OF THE ZULUS.

This exquisite little antelope, the smallest member of the genus to which it belongs, is of a mouse-gray colour, with a warm tinge of brown on the lower limbs and the face, and paling to light buff on the under parts. It stands about 13 inches at the shoulder, and slightly more at the croup, the ewe being a little larger than the ram ; the muzzle is naked, and the aperture of the sub-orbital gland is in the form of a slit. The horns, present in both sexes, are situated far back on the skull, from which they rise on the plane of the frontals. They are ringed at the base and are so short (2 to $2\frac{1}{2}$ inches) as to be scarcely visible above the long tuft of hair which separates them. The ears are of moderate length, and somewhat more rounded than in other members of the genus. The legs are extremely delicate, scarcely thicker than an ordinary lead pencil ; the tail is very short.

The extreme limits of the range of these antelopes are not, I believe, clearly defined. Blue-buck swarm throughout the southern and eastern portions of the Cape Colony, as also in Natal and Zululand, and are probably numerous in Pondoland. In the central parts of South Africa they are

unknown, but they appear in the Angola province, and may possibly extend up the east coast as far as the Zambesi. Delagoa Bay, however, is the most northerly point at which I have met with them. In the Chiringoma Forest I met with an antelope hitherto undescribed, the skull of which is pronounced to be probably that of a blue-buck (the skins unfortunately were lost amongst others of my trophies); this cannot be the case, however, as the antelope was foxy-red in colour, and pure white beneath. Blue-buck are, with the exception of the Livingstone's antelope, the most strictly forest-dwelling of all the smaller African antelopes. When disturbed in bush by dogs or beaters they will not run out, but keep going round and round, along the numerous tracks which intersect the cover. At night they feed out on the edges of the bush or forest. They usually drink once a day, in the evening, but in hot weather often drink again between noon and 1 P.M. They associate in pairs, though parties of three or four may be seen feeding together in the narrow forest glades. They are purely bush-feeders; the leaves of the "olive-wood" tree and the "spek-boom" form a special attraction for them in the Cape Colony. They are usually to be found on the move in the early mornings and evenings, but they creep about more or less throughout the day. Their cry of alarm is a sharp whistling snort. The fawns are usually born during the rains, but in the Cape Colony they may appear in almost any month. Their flesh is very palatable.

There is but one sure plan by which these beautiful little creatures can be brought to bag—by hunting them up in their own domains. The sportsman must either creep about in the bush, with every sense on the alert, kneeling down when he hears their whistle, and peering under and through the scrub for a glimpse of his game, or he must choose some frequented spot and patiently wait for them. His chances of success are increased if branches of the shrubs or trees on which they feed are strewn down in such spots for a few days before he intends to watch for them. In

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any bush, however, where they are numerous, if the sportsman, during a bushbuck drive, watches one of the frequented tracks, he is almost sure to see one or more scuttling along in front of the beaters. A .320 rook rifle is the largest weapon that should be used for these diminutive antelope.

F. VAUGHAN KIRBY.

THE CROWNED DUIKER (*Cephalophus coronatus*)

This is a rather handsome duiker, standing, approximately, about 15 or 16 inches in height, and of a bright yellowish-fawn colour, the hair faintly tinged with black. Very little is known of the species, which was established by Dr. Gray as far back as 1842 from examples in the Earl of Derby's collection at Knowsley. These examples were procured from the Gambia. In recent years scarcely anything has been heard of this antelope, and a sporting expedition into the Gambia country would probably result in the procuring of specimens of this and many other interesting animals.

THE ABYSSINIAN DUIKER (*Cephalophus abyssinicus*)

ABYSSINIAN NAME, *Midaku* OR *Madoqua*

TIGRE NAME, *Qualbadu* AND *Dedanid*

This duiker, discovered by the naturalist Rüppell in the highlands of Abyssinia, is of a grayish-brown colour with light under parts, a reddish-brown face, and brown feet. Although considerably smaller than the common duiker, it is nearly allied to that antelope. The best recorded pair of horns of this species, now in the possession of Prince A. de Lucinge, measure $3\frac{9}{16}$ inches in length. Its habitat lies in the wild and little known mountains of Abyssinia, and, like most of the duikers, it is a lover of bush and covert.

H. A. BRYDEN.

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THE COMMON DUIKER (*Cephalophus grimmii*)

Duiker (LITERALLY "DIVER") OF THE BOERS ; *Impunzi* OF THE ZULUS, SWAZIS, MATONGA, AND MATABELE ; *Puti* OF THE BECHUANAS ; *Iputi* OF THE BASUTO ; *Gwapi* AND *Nyasa* OF LOWER ZAMBESI NATIVES.

The duiker is perhaps the best known of all African antelopes, owing to its wide distribution. Individuals vary much in colour, even within strictly limited areas. Gray, with a more or less yellow tinge, may be considered the normal colour of the fur, but when the yellow predominates a decidedly green tint results ; while again, brown, with a rufous suffusion throughout, entirely changes the appearance of the animal.¹ The under parts and inner sides of the limbs are white, but this general rule is subject to variation, many duikers, especially at high elevations and in thick bush country, having long and rather woolly hair of a pale buff colour on the under parts. One species alone is recognised ; but I strongly incline to the opinion that the small brownish-red duiker, found in Portuguese Northern Zambesia and the Mozambique province—an animal constant in coloration, and almost entirely replacing the gray or common duiker—deserves to rank as a marked variety. The ram alone carries horns, though several cases of horned ewes are on record, and I have shot one such myself. The average length of the ram's horns is $3\frac{1}{2}$ inches or 4 inches, but I have seen a pair measuring as much as 6 inches. They rise far back on the skull, inclining backwards at an angle from the plane of the frontals, are usually slightly divergent, and are ringed at the base. The muzzle is naked ; ears long and narrow ; sub-orbital gland large and opening in the form of a slit ; there is a tuft of long hair between the horns ; tail short, with black stripe along its upper surface. An adult male stands 26 inches at the shoulder, and slightly higher at the croup.

¹ A pure albino ewe has been shot by the late Mr. H. Glynn in the Transvaal, and I have myself shot a specimen with a broad white patch over the shoulders.

The duiker is distributed generally in pairs or singly throughout Southern Africa, from the Cape to the Zambesi, and wherever I have travelled north of that river, through Portuguese Zambesia and the Mozambique province, I have met with it, though less frequently than in the south. They are partial either to open country, with scattered patches of bush, to foothills and wooded kloofs, to scrub jungle or thin forest. If water is near they drink about every other day, but I have met with them in absolutely waterless localities.¹ They eat alike leaves of shrubs and grass, and, like bushbuck, red duiker, and bluebuck, greedily devour all manner of berries and wild fruit in season. The young are born at the commencement of the rainy season; they are easily tamed, and make charming pets. They seem to become almost omnivorous. I had one which devoured portions of a "Tam o' Shanter," pieces of "blue-mottled" soap, a ball of twine, jam, pudding, and cake, without any apparent ill-effect. Duiker are not swift of foot, but are so wary and dive so cunningly through the scrub, dodging first one way, then another, that only a good dog will run them in. They are sometimes hunted with fox-hounds in Bechuanaland and elsewhere, and have pace and staying power sufficient to enable them to stand well before their pursuers. Should a duiker observe any one approaching and think himself unseen, he dodges behind the scrub in such a way as to make it appear that he has lain down; but not a bit of it, he will not be found there if one goes to look, for he slipped away the moment he was out of sight, and is now bounding like an india-rubber ball through the bush, 150 yards away. The flesh is of poor quality, only fit for soup or stew.



FIG. 27.—Horns of Common Duiker. From specimen shot by Mr. F. C. Selous.

¹ The common duiker seems to be almost independent of water. I have seen these animals during South African mid-winter—the dry season—in the heart of the Kalahari, where they could certainly at that time find no possible drinking-place.—Eo.

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Early morning or evening is the best time for shooting duiker, before they lie down for the day; they are far less wary then, and more approachable, especially if one advances with the early sun behind him. I have seen them stand in one spot without even moving, in the early morning, while several shots have been fired at them. They are very tenacious of life, and even when hard hit will go off at a great pace as though untouched. A .450 rifle or Lee-Metford is the best weapon to use.

The pleasantest way, perhaps, of hunting them is for two or three guns, mounted, to ride in line, trying each patch of scrub, and, when the buck jumps out, to dismount and take the shot; a running duiker is a very difficult mark to hit, and one has to use his rifle smartly.

F. VAUGHAN KIRBY.

THE KLIPSPRINGER

Genus OREOTRAGUS

This species belongs to another sub-family (*Neotraginae*) of antelopes, including six generic groups, all restricted to Africa. They are all small animals, with the muzzle either naked or trunk-like and hairy, large face-glands opening by a circular orifice, and a short or medium tail. The lateral hoofs may or may not be present, and the horns, which are wanting in the female, are short, nearly or quite straight, rising vertically or with a backward inclination, with the bases ridged and the tips smooth.

From the other members of the group, the klipspringer, which is the only representative of its genus, is readily distinguished by the thick, pithy hair, the rudimentary tail, and, above all, by the rounded and blunt hoofs, upon the tips of which the animal stands. The nearly vertical horns have a slightly forward curvature, and are ringed for their basal third.

THE KLIPSPRINGER (*Oreotragus saltator*)

Klip-bok OF THE BOERS; *Kainsi* OF THE HOTTENTOTS; '*Ligoka* OF THE ZULUS, SWAZIS, AND MATONGA; *Mokabayane* OF THE BECHUANAS; *Ec-go-go* OF THE MATABELE; *Ikoko* OF THE KAFFIRS; *Ikumi* OF THE BASUTO; *Ingululu* OF THE MAKALAKAS; *Kululu* OF MASARWA BUSHMEN.

This quaint little mountain-loving antelope has well been styled the chamois of Africa. Its fur is of singular texture, almost bristly, each hair being hollow; it lies thickly and closely on the body, but is unquestionably cool and light. These bristle-hairs are so loosely set, that, if a dead specimen is carelessly handled, they come out in handfuls, while a bullet-hole invariably leaves an ugly mark. Each hair is pale gray at the base, brown in the middle, and yellow at the tip, thereby imparting a singular stippled effect and a shade of olive-yellow to the whole fur. The ears are large for so small an animal—4 inches in length,—the sub-orbital gland large, muzzle naked, hoofs small, short, and deeply hollowed. It is stated that these antelopes can stand with all four feet on a crown piece, and I think this quite possible. The horns—which only the males carry—rise vertically from the skull, with a slight forward bend, and are ringed at the base; 4 inches is a good average length. My largest pair measures $5\frac{1}{8}$ inches. The adult rams stand 22 inches at the shoulder, the ewes 18 to 19 inches. The rams utter a shrill whistle when alarmed, but I am not sure if the ewes do also. Although I have seen no reference to the subject elsewhere, it is perhaps worth recording that in all specimens of this antelope which I have either shot or seen north of the Zambesi, the ears were longer by $\frac{3}{4}$ inch than in the southern form, while in none of the latter are the black ear-markings, outside and inside, or the black tips, so clearly defined.

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These antelopes are widely distributed throughout South Africa, and up the east coast as far north through the Mozambique province as I have travelled (to the Chingwari range); they are also plentiful in Portuguese Northern Zambesia. In the Cape Colony they are far less numerous than formerly, but throughout Swaziland, the Transvaal, Mashonaland, Matabeleland, and Bechuanaland are still plentiful. They are by no means confined to the impossible krantztes of mountain ranges, but are found throughout the "low country" amongst stony bush-covered kopjes, rising from the flats. It is worth noting that upon several occasions I have found them many miles from any hills, ranging amongst the piled-up boulders of riverbeds. They are quite common along the Mehlamhali River of the Eastern Transvaal. When disturbed they merely run up or down the river amongst the stones. Klipspringers seldom lie high up on the kopjes during the day, but invariably seek the cool shade of the bush below, or of some deep kloof, and when disturbed dart off up the hillside. They are grass-feeders, and their flesh is most excellent. They associate in pairs, though several may be seen moving about at once on a hillside. The only klipspringer fawn I ever saw was in the month of August, the little creature being scarcely a month old and pale yellow in colour. I think, however, that, in common with most antelopes, the young are usually born between September and January, when the new grass comes on.

In certain localities the pursuit of the klipspringer is a somewhat arduous undertaking, particularly on high mountain ranges and amongst steep krantztes. They are wary, but still not difficult to shoot, as they often stand several times after being disturbed. In the "low country," when put out of a patch of bush, they at once run up the nearest kopje, and usually stand on the first large boulder, thus offering an easy shot. A sharp whistle will often cause them to pull up, even when flying at full speed up the hillside. Dogs that know their work soon bay them, driving them higher and higher, till the buck reaches the highest pinnacle, and the dogs stand

around and bay; but I have seen klipspringers escape from even so awkward a dilemma by boldly leaping over the heads of the surrounding dogs and again making off. Klipspringer stalking, however, is very pretty sport, affording healthful exercise amidst charming scenery. On level ground they cannot run quickly, and a good dog will pick them up in a short distance. I have witnessed some extraordinary leaps performed by these antelopes, though unfortunately I have no recorded details of these. I well remember many years ago, when following one along the edge of a krantz, my boys cutting off its escape below and the dogs above; one of the latter, ranging far ahead, came round the hillside in front of it, when without hesitation the little creature leaped from the edge of the krantz to a ledge below, and, running obliquely down the steep rock wall, passed far in front of my boys and escaped. I did not measure the height, but I am sure it was over 30 feet from the krantz to the ledge, and as the krantz overhung, it was a clean leap. But it is when climbing a hill that their marvellous agility is most apparent, for they will race up the smooth face of slippery rocks, so steep that no other animal than a baboon could find a footing there. Any rifle can be used, if sighted to 300 yards, but as these antelopes are but small and easily killed, the smallest bores are the best to use. A double .360 is a perfect weapon for this work. One should be careful to wear boots that will not slip on the rocks, otherwise a nasty fall might result.

F. VAUGHAN KIRBY.

IN SOMALILAND

SOMALI NAME, *Alakud*; ABYSSINIAN NAME, *Sass*.

This antelope frequents the Golis range, and is generally seen at the tops of the ridges of the hills where there are boulders of rock. I have seen them in the bush, low down in a ravine, but as a rule they are near the rocks. An old male I shot measured 18 inches at the shoulder, and

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3 feet from tip of nose to end of tail. The horns were a little over 3 inches long, straight, and smooth, inclined forwards, and slightly ringed at the base. The female has no horns. The hair is harsh and coarse, light at the root, a dark brown in the middle, and tipped with yellow. The hair is very elastic and is said to make good stuffing for saddles. The hoofs are deeply cupped and the pastern bones very upright. I always saw these animals either alone or in pairs. When alarmed they stamp the ground and utter a sound something like a loud sneeze. They are easy to stalk if you see them before they see you, but usually one suddenly comes upon them within shot; as they bolt they will often stop for a few seconds on the top of a boulder to look back.

J. D. INVERARITY.

THE ORIBIS

Genus ORIBIA

The oribis are the largest representatives of the *Neotraginæ*, and, in common with the following genera, have the hair and hoofs of normal form and structure. The extremity of the muzzle is naked, and the crown of the head carries no tuft of hair. As special characteristics of the oribis may be noticed the existence of a bare glandular spot beneath each ear, the presence of lateral hoofs, and the large size of the pits in the skull for the reception of the face-glands. Tufts of hair are developed on the knees, and the short tail has generally a black tip. The horns, which are about one-fourth shorter than the skull, slant backwards, and show considerable specific variation in the degree of development of the basal ridging.

The latter feature admits of the division of the species into two groups, as follows :—

A. The horns relatively slender, slightly ridged for about the basal 2 inches.

1. Cape Oribi (*Oribia scoparia*).
2. Peters's Oribi (*Oribia hastata*).
3. Gambian Oribi (*Oribia nigricaudata*).
4. Abyssinian Oribi (*Oribia montana*).

B. The horns stouter and strongly ridged for more than half their length.

5. Haggard's Oribi (*Oribia haggardi*).

THE CAPE ORIBI (*Oribia scoparia*)

Ouribikje OF THE BOERS; *Iula* OF ZULUS, SWAZIS, AND MATONGA; *Pulukudukamani* OF TRANSVAAL BASUTO; *Chisimbi* OF LOWER ZAMBESI NATIVES (this name, however, is used indiscriminately for other small antelopes).

Colour, tawny yellow above, white beneath, sometimes with a rufous tinge on the back; fur close and somewhat curly; tail short, black above; ears moderate, narrow, and pointed; a tuft of hair below each front knee; muzzle naked; sub-orbital gland much developed; aperture circular; lateral hoofs present; horns, only present in the males, average 4 inches in length, and rise vertically from the skull above the eyes, are widely separated, ringed at the base, and bend slightly forward; shoulder-height of adult male, 26 inches. The cry of alarm is a sharp whistle.

These little antelopes range from the south-eastern portions of the Cape Colony, through Natal, Zululand, the Free State, and Transvaal. Fairly numerous in parts of Bechuanaland, on the north bank of the Chobi River and North-East Mashonaland. Very plentiful on the open downs of Manicaland and in Portuguese East Africa, south of the Zambesi. Their range extends north of the Zambesi into British Central Africa, where it overlaps that of *O. hastata* (Peters's oribi). Oribi are equally at home on the lofty summits of the Drakensberg range, amongst the rolling foot-hills, and on the sweltering plains of the Pungwe and Urema Rivers, Portuguese

East Africa. At the higher elevations they frequent the most open ground, lying in grassy hollows, on sheltered slopes, or amongst out-cropping rocks; but in the low country are found amongst palm-groves and low scrubby bush. If they discover any one at a distance they usually lie down, and under all circumstances lie very closely. They associate in pairs or in small parties of three or four. When disturbed they dart off at a rapid pace, running low for about 30 yards, then commence springing frequently into the air, alighting each time upon their hind-legs first; the object of this is probably to enable them to see in what direction they are going. Oribi fawns are born about Christmas-time, but I have seen many in Portuguese East Africa which would be fully two months old at the end of November.

Oribi shooting with the rifle is very pretty sport. Formerly we used to hunt on horseback, and ride into the patches, dismounting as they jumped away, and taking the shot as quickly as possible. Better sport can perhaps be obtained on foot if the grass is not too long. They may be seen standing about or feeding, and on discovering the sportsman they will lie down, and the latter must then manœuvre round them, approaching nearer and nearer, and being ready to fire when they jump up. They can be bagged also in this way with a smooth-bore and a charge of 3A shot. If in doubt whether the buck is hit, it must be closely watched (if mounted the sportsman should gallop after it), for when wounded they invariably go and lie down very quickly, and can be easily approached and shot. When on foot the sportsman should carefully survey the ground ahead of him with his glasses—especially sloping hillsides—for an oribi, with its yellow fur, is a very conspicuous object, though small; but practice is required to enable one to distinguish between the small yellow ant-heaps and the game one seeks. Oribi have a great turn of speed, and only a good greyhound will run into them. The flesh is excellent eating, but, like that of all smaller antelopes, requires well larding.

F. VAUGHAN KIRBY.

PETERS'S ORIBI (*Oribia hastata*)

MANGANJA NAME, Insa

General colour light cinnamon-yellow, which abruptly merges into white on the flanks; this abrupt hue fades towards the chest. The belly is pure white. The hair is everywhere thick and long, almost woolly on the abdomen. There are wavy transverse lines to be noticed on the back, though these are faint and inconspicuous in some lights. The skin in the inguinal region is almost devoid of hair, and on each side of the testicles and teats, respectively, are two glands, from which hang long matted tufts of pure white hair, 2 or 3 inches in length. The forehead is concave. This antelope has a circular patch at the base of the ear, devoid of hair, and on an inferior plane. There is an isolated white patch on the throat and an ill-defined white stripe above the eye.

Over the tear-gland there is a slit-like valvular fold of skin, at right angles to the long axis of the face.

The legs are light yellow; there are horny knobs on all the fetlock joints. The hoofs are fluted and sharp, and annulated at their base. The tail is black. The horns are smooth, diverge a little, and curve slightly forward.

There is a curious pouch-like invagination of the skin between the base of the hoofs, open anteriorly, and big enough to contain a .577 bullet. The flesh is very good eating.

The measurements I took of two adults are the following :—

♂ 16th April 1896.	Inches.	♀ 31st July 1896.	Inches.
Nose to tail	43	. . . .	40
Height at shoulder	21½	. . . .	21
Girth of body behind shoulder	19	20¼ ins.; barrel	26½
Point of shoulder to nose	14½		
Girth of neck (middle)	7	. . . .	7
Girth of arm	5	6 ins.; of thigh	13½
Length of ear	5	5
Length of tail	4½	(black hairy tuft, 2 ins.)	4½
Weight, 35 lbs.		Weight, 33 lbs.	

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A doe I shot on 13th October 1895 contained a small fœtus, and on 27th June one of my boys caught a young one that had not been born more than a day or two.

The locality where this species was obtained is limited, as far as my shooting was concerned, to the large open "dambos" or plains that lie between the Upper Shiré River and the foothills of the Mangoche range, on what, in fact, was the bed of Lake Nyasa about a dozen years ago. Here it is found in couples in the open, and jumps up like a steinbuck from the long grass; and, like that species, always keeps to the open and never takes refuge in the neighbouring belts of bush that fringe the plains. When I was stationed at Fort Johnston I got a good series of these oribis, and there was a spice of danger in shooting on these plains, as the Mangoche range was the stronghold of a slave-trading scoundrel named Zeraphi, who had defeated an expedition sent against him years before, captured a 12-pounder gun, and generally raided and destroyed every village on the east of the Shiré River. This, though a most undesirable state of things in a British Protectorate, and one which was remedied very speedily, made the east side of the Shiré River a regular game reserve during my year of residence in those parts.

One afternoon I had shot a nice buck about a mile from the Fort, and about sundown returned with the spoil to find the ramparts manned by the whole of our available garrison, about fifteen men, who anxiously inquired whether I had been having a brush with the enemy, as they were seriously thinking of sending a forlorn hope to search for me, and the collector gravely assured me that if I went out like that he could not be answerable for my safety! Though this sounds rash, it was not really very risky, as the native guns were old gas-pipes and flint-locks, and not dangerous except within half a dozen yards' range, as bits of iron wire and pieces of cooking-pot legs have a most erratic trajectory beyond that distance. One golden rule I always made, however, was, in passing

through patches of long grass (often 10 feet high), never to follow a native path, but take my bearings and keep parallel to it through the thick grass; by doing this you cannot be ambushed, stepping carefully and making your natives hold their tongues. Natives also have a profound respect for the modern sporting rifle, and will "beg you to sell them some of the medicine which makes the gun point so straight." More than once Cogswell and Harrison's address in Bond Street was carried away, written on a leaf of my pocket-book, as a sure talisman for holding straight, when I could not persuade them that there was no such charm!

PERCY RENDALL.

THE GAMBIAN ORIBI (*Oribia nigricaudata*)

Gebari OR *Mahomet's Antelope* ON THE GAMBIA

This little antelope, though closely allied to *O. montana*, is of smaller size. The auricular gland is as large as in *O. hastata*, and the tail, like that of *O. scoparia*, has a blackish tuft. The top of the muzzle is brown. The male is 21 inches in height at the shoulder, length of the hind-foot 10 inches, of the ear 3.4 inches.¹

It was in 1829 that Cuvier first published a figure and description of this animal, a female of which was brought home alive by M. Perrotet, but only survived a short time in Paris.

Whitfield in 1845 procured another for the Knowsley Menagerie which was figured by Waterhouse Hawkins. In 1867 the male which really proved the means of elucidating this species was presented to the Zoological Society by Mr. Charles B. Mosse. It lived until 1872, when Sir Victor Brooke published a paper on it that was the means of separating it from both the Cape and the Abyssinian oribis. Mr. Mosse procured his type specimen of this species 70 miles up the river Gambia, half-way between Bathurst and M'Carthy's Island.

PERCY RENDALL.

¹ From *The Book of Antelopes*.

THE ABYSSINIAN ORIBI (*Oribia montana*)ABYSSINIAN NAME, *Miwaka*

I found this little animal rather abundant on the Shoa plateau, and very common in the Galla plains between Shoa and Lake Guai. It is a very small antelope, averaging about 18 or 20 lbs. in weight, and of a yellow tint, turning to a light yellow or nearly to pure white on the under parts. The head is very characteristic, with a dark spot of naked skin on the cheeks under the ears, big eyes, very large glands under the eyes, and a rather arched outline of nose. The horns are black, sharp, very hard, with wrinkles at the base, and the upper part beautifully polished; they are straight, with a gentle curve inwards and forwards, especially in the middle. The female is hornless.

The chief food of this oribi is certainly dry grass and mimosa leaves, as it is more frequently found upon grassy plains more or less dotted with mimosa, and often upon plains where no trees at all, not even a bush, are to be seen for miles round. On the Shoa plateau I frequently saw them on the lower slopes of grassy hills, but never in really rocky or steep places. Upon the Galla plain, at the foot of Mount Zokioila, on the southern side, they were, in May 1897, exceedingly plentiful. The habitat of the bohor antelope seems to be also the favourite ground of the Abyssinian oribi, as although these antelopes do not appear to herd at all together, both species are often seen near one another. In this district I saw certainly over fifty a day, and had no trouble in picking up about a dozen of these oribi in four days' shooting, although I was looking specially after bohor.

These little antelopes are, as a rule, to be seen in small herds of from three to six; only once did I see seven together; nearly always they were in twos or threes. At morning and evening they are to be seen grazing in

the open. The females are often bigger than the males, and without glasses these bucks are rather difficult to make out, as the ears are kept along the horns, and thus screen them from the hunter. The shot is ordinarily between 100 and 150 yards. These oribi are not very timid unless much shot at.

In the hottest hours of the day they lie down in dry grass about 3 to 4 feet high, and more often in the shade of the dwarf mimosa, which stands isolated in the middle of the plains. Sometimes they are lazy and do not care to move except when one is passing quite near. As a rule they jump off about 60 yards away. When a strong wind was blowing I often managed to shoot them with the shot-gun by working slowly against wind in the most likely places. With the .303 rifle they afforded capital sport. The oribi is a small mark, and when jumping in high grass quite difficult enough to give very good practice. Taken all round this is an excellent little game-animal, and I owe the Abyssinian oribi many a pleasant day and many a good dish at dinner, when resting myself and my caravan at Addirabbaba.

(VICOMTE) EDMOND DE PONCINS.

IN EAST AFRICA

SWAHILI NAME, *Taya*

This oribi has so far not been found east of the Mau escarpment. It is plentiful on the rolling grassy downs from an altitude of 7500 feet right away west as far as the shores of Victoria Nyanza in Kavirondo, and is found on the banks of both the Sio and Nzoia Rivers. In Kitosh and Turkwel it is also abundant, but it is certainly more plentiful in Nandi than anywhere else. An oribi—which is probably referable to this species—was found and killed in Uganda and on the western shore of Lake Albert by Colonel Ternan in 1896, but the sole information he could give me on my writing for particulars was that he had lost the skulls; the skins

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had been eaten by a remarkably fine breed of omnivorous rat, and the only thing he could remember about them was that they were the usual colour, had four legs, and that their skins fitted them remarkably well !

This little antelope is found singly or in small lots of two or three together, male, female, and young one. Occasionally five or six may be seen together. They are essentially beasts of the open, and at all times avoid bush and other thick cover. During the heat of the day, and when the grass is long and withered, they are rarely seen unless disturbed, as they lie down about 8.30 A.M., and are not on the move again until 3.30 or 4 o'clock in the afternoon. On the Mau down, for practically half the year, that is from June to December, one might go for days without seeing one, owing to their size and colour assimilating so closely with the length and shade of the grass. They lie very close, like a duiker, and will almost allow themselves to be trodden on, but when they do move they go off with such a rush, and double from side to side so quickly that it is almost impossible to see them until they have gone some distance, when they will bound up into the air, no doubt to see where they are going, and if there is danger ahead. These bounds are only taken in long grass. During the rest of the year, when the grass is short and green, they are very conspicuous and can be seen at long distances.

No buck of its size affords better sport than this oribi, and certainly few, if any, can compare with it if the main object of its pursuit is for the "pot."

Any one wishing to stalk them should be out early and on the ground between daylight and 8.30 A.M.; and, if the wind will allow him to do so, he should work the ground with the sun at his back or on one side, as they are then so much easier to see. The evening, between 4 P.M. and sundown, is, if anything, a better time, as the wind is likely to be much steadier, and the sun, being low down, makes them show up quite as well as in the morning. It is certainly a much nicer time, as it is becoming

cooler instead of hotter every minute, and the grass is generally dry, and therefore pleasanter to crawl through.

The localities in which this oribi is found are usually very well adapted for stalking. Even on the Mau plateau, after a recent grass-fire, there is sufficient covert in the shape of innumerable small ant-heaps; whilst in Nandi, Kavirondo, Kitosh, and Turkwel there is sufficient scrub to hide the stalker if he takes ordinary care. It must not be supposed, however, that because this little antelope is in the habit of lying very close in long grass, and almost allowing itself to be trodden on, and of standing quite still intently gazing at the intruder, hoping thereby to escape observation, it is at all times easy to approach without the usual precautions being taken in regard to wind, keeping out of sight, etc. When once alarmed, though they will as a rule not go far, it is well to give them time to settle down before following in the direction they were seen to go in, as they are very wary, and much given to doubling about to the right or left of the line of their retreat. Often have I seen them bounding away to one side of, and almost on a level with me, when all the time I expected to see them somewhere straight in front. If sought after when the grass is long, it is better to go out when the sun is well up and they are lying down, as their habit of lying so close will allow of a very near approach. Under these circumstances a rifle is practically useless, and far better results will be had with a gun and B.B. or S.S.G. shot, by shooting a trifle ahead of the moving grass, the beast itself being usually invisible for the first 30 or 40 yards, or by waiting until it bounds into the air, when it must be taken on the hop. When hit and wounded only slightly they will lie down within a very short distance, if not almost at once. They are, however, very tenacious of life, and will go off and sometimes get clean away with the most terrible wounds. A good dog is invaluable for this kind of shooting.

Their note of alarm is a sharp shrill whistle very like a reed-buck's

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(*Cervicapra bohor*), but not so loud. Weights and measurements of an average male and female are as follows :—

Male.—Total length, 3 feet 7 inches ; height at shoulder, 1 foot 11 inches ; tail, $3\frac{1}{2}$ inches ; weight, 38 lbs.

Female.—Total length, 3 feet 8 inches ; height at shoulder, 1 foot 11 $\frac{1}{2}$ inches ; tail, $3\frac{1}{2}$ inches ; weight, 43 lbs.

F. J. JACKSON.

HAGGARD'S ORIBI (*Oribia haggardi*)

SWAHILI NAME, *Taya*

The East African or Haggard's oribi is, so far as we yet know, confined to the coast regions, and is not found very far inland, the farthestmost point where I have myself seen and shot it being Maji Chumvi, a place that was in former times two days' march west of Mombasa, but is now about an hour's run by rail. Near Mambru I have seen its spoor, but at Merereni, some 15 miles farther north, I saw none, though the country appeared well adapted to its habits. On the banks of the Tana River it was seen and shot by Sir Robert Harvey and Mr. H. C. V. Hunter in 1888. The Witu district is, however, its chief habitat, and during the years 1885 to 1887 I saw large numbers when shooting in the vicinity of Mkonumbi, Jipi, and Taka. In the last-named place it was very plentiful. In habits it differs in no way from the other members of the genus, excepting perhaps in its partiality for the vicinity of human habitations, or rather for the cultivation, which no doubt affords a pleasant change of diet when the young corn is beginning to appear.

F. J. JACKSON.

THE GRYSBUCK AND STEINBUCK

Genus RHAPHICEROS

These two antelopes differ from the oribis by the absence of the naked patch below the ear, the lateral hoofs being present in the former and absent in the latter, the horns in both rising nearly vertically from the head and the gland-pits in the skull being small. Neumann's steinbuck, from East Africa, seems best regarded as a local race of the steinbuck.

THE GRYSBUCK (*Rhaphiceros melanotis*)

Grysbok OR *Grys Steinbok* OF THE BOERS ; *Inhlengana* OF THE SWAZIS AND MATONGA ; *Sash-lungwān* OF THE MATABELE ; *Isikupi* OF THE TRANSVAAL BASUTO ; *Timba* OF THE MAKALAKAS.

Colour, deep chocolate-red on the upper parts, plentifully stippled with white hairs, and paling into rufous on the under parts and chest ; throat rufous-yellow ; the hair on the frontals and back of the neck is also slightly stippled, but this does not extend to the cheeks, sides of the neck, throat, chest, or under parts. There is always a more or less clearly-defined black patch on the crown. Ears of moderate length and rather narrow, brownish-gray behind ; muzzle dark and naked ; sub-orbital gland with circular aperture. No knee-tufts, but supplementary hoofs are present. Horns, present only in the males, average 3 inches in length, and are straight, wide-set, non-divergent, and without rings. The male stands 22 inches at the shoulder, 23 inches at the croup ; the female $\frac{1}{2}$ inch more. Tail short.

Grysbuck abounds at the present day throughout the South-Eastern districts of the Cape Colony, though rare in Zululand, Natal, and Matabele-

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land.¹ It is fairly numerous in parts of the Mashona country, Gazaland, and the Eastern Transvaal, particularly near Komati-Poort and along the Letaba River. I did not meet with it in the Mozambique Province, but in Portuguese South-East Africa it is fairly numerous. It is found singly or in pairs, usually in hilly districts, being very partial to open hill-sides with a sprinkling of thin bush and low scrub. It lies very closely in cover, and, unlike its congener, the steinbuck (*R. campestris*), seldom stands after it has once made off. It can exist for a long period without water, and I have seen them in quite waterless localities. They are amongst the first to retire to cover in the mornings, and leave it late in the evening. During the day they lie up in patches of bush, in gullies, or on sloping hill-sides, and in the low country are partial to the rough scrub-covered ground at the bases of low kopjes. They are purely grass-feeders, and their flesh is excellent for the table. The fawns, which are slightly darker in colour than the adults, are usually born at the beginning of the rains, but in the Cape Colony, where the seasons are very changeable, this may occur during any month in the year. The only cry I have ever heard the grysbuck utter is a loud bleat when seized by a dog. They are by no means swift, but, owing to the rough, bushy nature of the country they inhabit, only a good dog will run into them. Grysbuck can either be shot during an early morning's stalk, when it is not a hard matter to get within easy range, or they can be walked up, one or more guns taking a line of country and getting their shots in as the bucks jump up. When running straight away their plump sterns offer a fairly easy mark, as they run far more smoothly than either a duiker or a steinbuck. I consider a .320 rook rifle quite sufficient to account for any grysbuck; a larger weapon, .450 bore, is perhaps more certain, but it cuts them up too much, and spoils them both for the cook and the taxidermist.

F. VAUGHAN KIRBY.

¹ It is found also in the western parts of Cape Colony, being not infrequently shot on the Cape Peninsula, within a few miles of Cape Town.—Ed.

SHARPE'S STEINBUCK (*Rhaphiceros sharpei*).

A new and interesting antelope, the skin of which was brought by Mr. Alfred Sharpe from Nyasaland in 1896, seems, undoubtedly, to form a curious link between the grysbuck and the steinbuck. This antelope, which was procured by Mr. Sharpe from Southern Angoniland, British Central Africa, was described by Mr. Oldfield Thomas at a meeting of the Zoological Society (see *P.Z.S.*, 1896) as a *Rhaphiceros*, with the white markings of the grysbuck, but with the feet of the steinbuck. The bright red coat, strongly grizzled with white hairs, certainly resembles very much that of the grysbuck.

H. A. BRYDEN.

THE STEINBUCK (*Rhaphiceros campestris typicus*)

Steinbok OF THE BOERS ; *Ingcina* OF THE ZULUS, SWAZIS, AND MATABELE ;
Puruhuru OF THE BECHUANAS ; *Ipulupudi* OF THE TRANSVAAL BASUTO ;
Gai-ee OF MASARWA BUSHMEN ; *Ee-pen-nee* OF THE MAKALAKAS.

This ubiquitous little antelope is almost as familiar an object as the duiker ; it is graceful and slender in the extreme, with most delicate legs, and bright, lustrous eyes. The colour of its fur is usually red-fawn on the upper parts and white below and on the inner sides of the limbs, but a more or less brown tint appears in some individuals, and silvery-gray in others. Unlike the grysbuck these antelopes have no lateral hoofs, the muzzle is naked, and the aperture of the sub-orbital gland is circular. The vertical standing height is 22 inches to 23 inches. The horns, seldom over 4 inches in length, and only present in the males, rise vertically, well back on the skull, and are straight, rather wide apart, and smooth ; ears and tail of moderate length. There is always a well-defined black crescentic mark on the crown.

The steinbuck is distributed widely over the whole of South Africa, from the Cape to the Zambesi, though in the south-eastern portions of the Cape Colony its place is taken by the grysbuck. It is not found, however, in mountainous districts or in dense forest belts, being partial to open flats, rolling grassy downs, and thin forest. In Portuguese East Africa I found them fairly numerous along the Pungwe River, and on the flats below Gorongoza, west of the Urema River; but, singularly enough, on the vast Urema plains, to the east of that river and north of the Mwaredsi, I did not meet with a single specimen. Neither did I see any in the Mozambique province—if any are eventually discovered there, they will probably be referable to *R. sharpei* of Nyasaland. Like the grysbuck, they would appear to be quite independent of water, but if water is anywhere near they will drink. It is somewhat difficult to know how they thus subsist without it, seeing that they are grass-feeders; if leaves formed portion of their diet they might supply the want by eating those of a watery, succulent nature. Steinbuck lie very closely in cover, or even in the open, usually stretching their necks out in front of them on the ground, but they spring to their feet with wonderful rapidity when they decide upon flight. They often scratch up the ground with their hoofs, particularly near the spots where they deposit their droppings, but as this is also done in other places, it is possible they may occasionally eat small succulent roots and bulbs. I cannot recollect ever seeing a lately-born steinbuck fawn, but as the spring is the rutting season, there is no doubt the fawns, like those of most antelopes, are born about Christmas time.

In parts of Bechuanaland and the Cape Colony steinbuck are regularly hunted with foxhounds, or coursed with greyhounds, and, having plenty of pace and staying power, they give very good sport. In the low country, early morning is the best time for shooting them. When alarmed on their feeding-grounds, they seldom run far before standing, but if they show no inclination to do so, a sharp whistle will often bring them up

suddenly, thus offering the chance of a shot. If put up in the daytime they make off very quickly, and are a most difficult mark for a bullet, as they dodge from side to side through the scrub. Their flesh is dry, but tender, and very fair eating. Being such small, delicate creatures, a rook rifle is the very best weapon with which to shoot them. I have always found the .320 rook rifle, 15/100 charge, quite sufficient to kill them clean.

F. VAUGHAN KIRBY.

NEUMANN'S STEINBUCK (*Rhaphiceros campestris? neumanni*)

IN EAST AFRICA

SWAHILI NAME, *Ishah*

General colouring sandy-chestnut, rather darker on the forehead, a dark brown line running up for an inch and a half from the nose. The tail is short and white beneath. The ears, lower jaw, and upper part of the neck, and a thin line round the eyes are whitish.

The horns are thin, smooth, and run to a very sharp point, and are generally the same distance apart at the tip as at the base, 3 to 5 inches being the usual length. The female is without horns.

In size this is the smallest antelope I have met with, with the exception of the dik-diks and Zanzibar antelope.

We found it common in the long grass on the plains round Kilimanjaro, and in consequence of its being rarely found anywhere except in the long grass, named it the grass antelope, and considered it a prize for the pot, as the flesh was more tender and juicy than that of any other antelope. We did not meet with it up the Tana River. The usual shot we had at them was a running one with a .450 express rifle. In the heat of the day they lie up in the grass and make a pretty shot as they run away, after jumping up in the open.

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It is a question whether the steinbuck found by Herr Neumann in German East Africa, which has been described by Herr Matschie as a new species and named Neumann's steinbuck, and which is probably the same as those found by us, is really distinct or not, or whether it is the same as the South African steinbuck, which is found from the Cape to the Zambesi.¹ On our way down from Taveta to the coast, near Mount Maïngu, I shot a steinbuck in a small opening in thorny bush which to me then certainly appeared different from those obtained round Kilimanjaro, being a decidedly heavier antelope, while the horns were shorter. I noted it down in my diary as a new antelope, and on my return home handed the skull to Dr. Günther, but he could not see sufficient difference to distinguish it from the common steinbuck.

Sir Richard Brooke tells me that when hunting with dogs in South Africa he has often seen these antelopes, when hard pressed, go to ground in the holes made by the aard-vark, and this is also confirmed by Messrs. Nicolls and Eglington in *The Sportsman in South Africa*.² I have the following note in my diary of our Kilimanjaro expedition :—"Sir Robert Harvey killed, I think, a new animal, so give the measurements. There is very little difference between it and a grass antelope. Height at shoulder 20 inches, girth of chest 20 inches, length to root of tail 30 inches, length of tail 2 inches." This may be Neumann's steinbuck.

H. C. V. HUNTER.

¹ It is more than doubtful whether Neumann's steinbuck is a good species. If it is, there can be little doubt that the East African steinbuck described by Mr. Hunter is one and the same animal with that discovered by Herr Neumann. Neumann's steinbuck is said to be "similar to *R. campestris*, but without any black colour on the head."—ED.

² I have seen a steinbuck go to ground in this way when hunted by Sir Frederick Carrington's foxhounds in British Bechuanaland.—ED.

THE SUNI

Genus NESOTRAGUS

In the absence of a recognised common popular title for the two representatives of this genus it seems best to adopt a local name of one of them, as "antelope" alone is too vague. They are nearly allied to the Grysback group, but the horns, which project beyond the back of the head, slope backwards in or near the plane of the face, and the gland-pits in the skull are large, while lateral hoofs are always wanting. The two species are :—

1. The Zanzibar Suni (*Nesotragus moschatus*).
2. Livingstone's Suni (,, *livingstonei*).

THE ZANZIBAR SUNI (*Nesotragus moschatus*)*Suni* OF KILIMANJARO NATIVES

This tiny antelope, which is usually known to Europeans as the Grave Island gazelle or Zanzibar antelope, is found on one or two small islands near Zanzibar, in the Duruma country, near Mombasa, about Kilimanjaro, and from thence down the coast line to Mozambique. It stands no more than from 12 to 14 inches in height at the withers, rather more at the rump, and is of a grayish-brown colour, with touches of a warmer tint. The under parts are white. The horns of the male are straight, slender, and not more than from 2 to 3 inches long. The female is hornless. This antelope is extremely partial to bush and cover, and is usually bagged with a charge of small shot, very much as is a rabbit in England. The facial glands have a strong odour of musk, from which the animal obtains its scientific name *moschatus*, and the flesh is only passable. The suni feeds mainly on bush, and is almost independent of water. It seems to have

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been among the animals collected by Captain Speke during his journey to the Nile sources. It was first identified by Baron von Döben, by whom it was scientifically named, so far back as 1846. H. A. BRYDEN.

LIVINGSTONE'S SUNI (*Nesotragus livingstonianus typicus*)

Lumswi OF THE SHUPANGA (SOUTHERN LOWER ZAMBESI) NATIVES ;

Inhlengana OF THE AMATONGA

This beautiful little antelope is of a light red-fawn colour, darker on the crown of the head, nape of the neck, and back, and paling towards the pure white of the under parts, the insides of the limbs, the chin, throat, and chest. The muzzle is naked, and the sub-orbital gland opens in the form of a slit, $1\frac{1}{8}$ inch long. On the frontal, below and between the horns, the hair is brush-like, though not growing to an actual tuft, as in the duiker. The ears are large and extremely delicate. The horns of the male (the female is hornless), which rise at an angle from the plane of the frontals and are straight, but recurving slightly forward near the tips, are deeply annulated for nearly two-thirds of their length from the base ; their average length is $3\frac{1}{2}$ inches. The longest I have secured measured $4\frac{1}{2}$ inches. The following are the dimensions of adult male and female :—

	♂	♀
Extreme length over all, tip of nose to end of tail	27 $\frac{1}{8}$ inches	25 $\frac{3}{4}$ inches
Length of tail	3 $\frac{1}{2}$ "	3 "
Perpendicular shoulder height	14 $\frac{1}{4}$ "	13 $\frac{1}{2}$ "
" height at the croup	14 $\frac{3}{4}$ "	14 $\frac{1}{4}$ "
Girth of neck	6 $\frac{1}{2}$ "	6 "
" behind the shoulder	14 $\frac{1}{8}$ "	13 $\frac{5}{8}$ "

The range of Livingstone's antelope is from St. Lucia Bay in Zululand throughout the entire forested portions of the east coast to the mouth of the Liuli River, province of Mozambique ;¹ north of the Zambesi it is rare to find a pair of horns over 3 inches in length. They are true forest

¹ But see Zululand form, p. 259.

antelopes, and except in the early mornings and the evenings, when they feed through the narrow open glades, they never leave the densest wooded tracts. They are entirely independent of water, and I think that to a great extent the pinnate leaves of a shrub which, with but few exceptions, I found in the stomachs of those I shot, and which are of an excessively watery nature, supply the animals' requirements in this respect. They are not gregarious. I always saw solitary individuals or pairs, though a dozen or more may sometimes be found feeding together. These antelopes are equally bush and grass feeders, and when pasturing in the open glades may constantly be seen raising their heads and clipping the leaves from various shrubs. Owing to the feeling of security which these silent forest tracts afford, the *lumsui* may be seen feeding as late as 9 A.M., and in the afternoons as early as 4 P.M. In cloudy, wet, and cool weather they move about restlessly all day, frequently rising up and lying down again after feeding for half an hour. During the day's heat they lie asleep under any shady bush, or even in open ground under the shade of the larger trees; but so perfect is their protective colouring, so exactly does it harmonise with the red-brown leaves which strew the ground underfoot, that though I have tried over and over again, often sweeping the ground ahead with my field-glasses, I have never yet been able to detect one lying down. They usually lie very closely, jumping up at not over 10 yards, and from that to 30 yards, when they bound away with wonderful speed, twisting and dodging amongst the trees, and, being so small, are almost impossible to hit with a rifle. When alarmed during the heat of the day, however, they invariably stand after running about 100 yards, and if the eye has been quick enough to follow them, they then offer an easy shot; if they are again disturbed, they run much farther before standing, as each time they are forced to run they increase the distance covered before they halt, and are thus soon lost to view in the gloomy bush. But when alarmed on their feeding-grounds, they scurry off at a great rate and never stand as

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long as they think themselves in sight. They have three distinct cries ; one is a sharp, clear, barking note, not unlike that of a bushbuck, but much less intense ; this is invariably uttered when they scent or hear anything suspicious at a distance. I have not noticed that they bark thus when they have made out the cause of their alarm, nor can I say if both sexes call in this manner. When put up at close quarters, they utter a sharp whistling snort, and at pairing time the rams, when chasing the ewes, make a loud bubbling sound like a he-goat. A wounded buck, when laid hold of, bleats in a similar manner to a duiker. The young are born between mid-November and mid-December, and are darker than the adults, being deep reddish-yellow in colour, the under parts and insides of the limbs pale cream, with a faint rufous tint.

The most extreme watchfulness and caution are necessary to bring these antelopes to bag ; the sportsman must be on their feeding-grounds at least an hour before sunrise, and during that hour can devote his attention to the small clearings and narrow open glades, carefully examining each 50 yards of ground in front of him as he advances up wind. If numerous spoors and droppings in any particular spot indicate that it is a favourite resort of the game he seeks, it is best to take up a position and watch patiently ; but as soon as the sun casts its shafts of light amongst the trees, he must leave the open ground and, entering the forest, endeavour to stalk with extreme care. In the pairing season the rams can be heard in all directions, and are then exceedingly unwary and easy to approach. Much less caution is necessary towards noon, when the antelopes are lying down. All likely spots—those well shaded and with a sprinkling of under-bush—must be tried, and when the animal springs up, at once kneel down and watch its erratic flight till it stands, when an easy shot will be obtained. They are very delicate and easily killed, although with a badly placed bullet from the small rifle which I recommend for shooting them, they will sometimes go a long distance, and may be lost altogether in the forest.

Nothing larger than a .320 rook rifle 15/100 should be used. It is as unsportsmanlike to use large bores and charges for these delicate creatures—and thereby cut the specimen up so badly as to render it useless for anything—as it would be to use a shot-gun. I always use a .320 rook rifle as above, and find it fully efficient.

F. VAUGHAN KIRBY.

ZULULAND SUNI (*Nesotragus livingstonianus zuluensis*)

ZULU NAME, *Inhlengana*

The Zululand form of Livingstone's antelope has recently been set apart by scientific naturalists as a sub-species, principally from its larger size and richer colouring. Mr. A. H. Neumann, in a letter to the *Field*, published 3rd September 1892, gives the following particulars. "The native name for it is '*Inhlengana*.' It is barely larger than the tiny blue buck of South Africa, but carries very much larger horns in proportion to its size. The specimen sent is an old male. The white hairs on the head are said to be from age and not general to the species. This one was killed in North-Eastern Zululand, which district seems to be the southerly limit of its range. It frequents the densely bushed parts of the low flats between the coast and the Bombo range. . . . It has a very strong musky scent, the source of which appears to be the large glands (the hollows for which are conspicuous in the skull) below the eyes, and of which the openings appear in the skin. So powerful is this odour that it may often be perceived pervading the bushes that the bucks frequent. Even the flesh (of the male at all events) is so highly flavoured by this peculiar essence as to be barely eatable." Mr. Neumann added that these antelopes seemed "fairly plentiful in parts."

The horns of Mr. Neumann's specimen, which are now in the Natural History Museum, measure $3\frac{1}{8}$ inches in length and 2 inches in circumference,

H. A. BRYDEN.

THE ROYAL ANTELOPE

Genus NEOTRAGUS

The royal antelope (*N. pygmaeus*), which forms the type of the *Neotragina*, is so closely allied to the sunis, that the advisability of separating the latter as a distinct genus may be questionable. The chief distinction of the former is to be found in the extreme shortness of the horns, which do not project behind the back of the head, and the absence of the unossified spaces in the neighbourhood of the nose-bones found in the skull of the sunis.

R. LYDEKKER.

THE ROYAL ANTELOPE (*Neotragus pygmaeus*)*Sang* OF THE VEYS IN LIBERIA

This animal is the smallest of all the ruminants, and stands about 10 inches at the shoulder. "General colour bright rufous-fawn, browner on the head and fore-back, richer posteriorly and on sides of neck and flanks. Chin and under surface pure sharply-defined white. Limbs rufous, except a narrow line down the posterior side of the fore and the anterior side of the hind ones, which are white.

"Tail about $2\frac{1}{2}$ inches long, without its tuft, which is bright rufous above, except at its tip, where it is pure white, as it is also below.

"Horns less than an inch long, sharply pointed, perfectly smooth and without transverse annulations at the base.

"*Habitat*.—The forests of West Africa from Liberia to Ashanti."¹

Bosman, in 1704, published at Utrecht an account of the royal antelope. He mentions that the feet were made into pipe-stoppers, and that the negroes called it the king of the harts. This has no doubt originated

¹ From *The Book of Antelopes*, to which the writer is indebted for other details,

the English name of royal antelope. It was not figured and described till 1734, and Sir Victor Brooke has drawn attention to the fact that it was then described. Linnæus mentions it in the second edition of his *Systema Naturæ* in 1740, and his name, *Capra pygmæa*, has priority.

Hamilton Smith, in 1827, is responsible for its generic name of *Neotragus*.

The Dutch naturalist Pel, during ten years' residence upon the Gold Coast, found three of these animals on the borders of Ashanti. Pel writes that these antelopes are found solitary or in pairs in the thickest forests of the Guinea Coast. Their activity is remarkable, and they are disturbed at the least noise, starting off with leaps and bounds to a considerable distance.

Büttikofer did not obtain this species, but states that when he showed the natives a coloured picture of this animal they recognised it at once and called it *Sang*, and said that it lived in the forest and was extraordinarily shy, moving away when discovered in a series of long jumps, often 9 feet in length.

PERCY RENDALL.

THE DIK-DIKS

Genus MADOQUA

The curious little antelopes collectively known, from the local name of one of their representatives, as dik-diks constitute a very well-defined generic group of the *Neotraginæ*, distinguished from all the other forms by the more or less marked elongation of the muzzle, which is almost entirely covered with hair, and the presence of a tuft of long hair on the crown of the head. The tail is so short as to be almost rudimentary, and the lateral hoofs are minute. The horns, which vary from half to three-quarters the length of the skull, are straight or slightly curved, with strong basal ribs. Like those of other mammals with trunk-like muzzles, the

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skull is remarkable for the shortness of the nose-bones and large size of the nasal chamber; and it has large but shallow gland-pits, and also unossified spaces. In some species the last tooth in the lower jaw is peculiar in having only two lobes in place of the normal three. None of the species are larger than a hare, and all are of delicate and slender build.

They naturally fall into two groups, as follows:—

A. Two lobes to last lower tooth, trunk slightly developed.

1. Salt's Dik-dik (*Madoqua saltiana*).
2. Swayne's Dik-dik („ *swaynei*).
3. Phillips's Dik-dik („ *phillipsi*).

B. Three lobes to last lower tooth, trunk well developed.

4. Damaran Dik-dik (*Madoqua damarensis*).
5. Kirk's „ („ *kirki*).
6. Cavendish's „ („ *cavendishi*).
7. Günther's „ („ *guentheri*).

EAST AFRICAN DIK-DIKS

In East Africa there are no less than four species of *Madoqua*, all of which are known to the Swahilis by the one name *paa*. These are *M. kirki*, *M. cavendishi*, *M. guentheri*, and another which has so far been confounded with *M. kirki*, but which will, I believe, prove to be an entirely distinct species. All are remarkable for their curious prehensile noses. The *paa* is found all the way from the coast as far west as Kilimanjaro, and north as far as Baringo, but so little interest has been taken in these tiny antelopes that it is most difficult to define their limits, and find out where one species ends and another begins. That they run into each other there is no doubt, but I do not think they are at all likely to interbreed. In habits they are all alike, and are only found in the driest sandy and stony bush country, often far away from any water. No doubt

the drops of dew on the grass and bushes on which they feed are quite sufficient for their requirements.

They are found singly or in small lots of two or three. Their note of alarm is a shrill screaming whistle. Sometimes they also emit a curious little grunting noise. The evenings and mornings are the best times to look for them, as they are then feeding, and afford capital sport with a rook rifle. During the rest of the day they lie very close and take a lot of moving, but with the aid of half a dozen men as beaters, they are easily killed with a shot-gun and No. 4 shot as they dart about from bush to bush like a rabbit.

Madoqua kirki.—This is the common *paa* of the coast region. It is very plentiful on the Island of Manda and on the mainland in the Witu province, at Merereni, and for a considerable distance up the Tana River, but how far I am unable to say. Inland from Mombasa it extends through the Daruma and Teita country and up north to Kibwezi, where it runs into *M. spec. incog.*, from which, however, it is readily distinguished by its uniform colour.

Madoqua cavendishi.—This is the largest of all the *paas*. So far as my own experience goes, it is found from the Kedony Valley to Lake Baringo, where it was obtained by Mr. H. S. H. Cavendish in 1897. In the Kedony Valley it is plentiful, also at Naivasha, but perhaps nowhere more so than in the bush round Lake Elmeteita.

Measurements and weight of male and female are as follows :—

	♂	♀
Total length . . .	2 feet 5 inches	2 feet 4½ inches
Height at shoulder . .	1 foot 3 " "	1 foot 4½ " "
Tail . . .	1¾ " "	2½ " "
Weight . . .	10½ lbs.	13¼ lbs.

Madoqua spec. incog..—I first met with this species at Mto Simba, about 15 miles north of Mikinduni, in the thick bush at the foot of the

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Ukamba hills. In one small patch of bush I put up several, and was at once struck by the bright chestnut colour of their backs and legs, but as I was after bigger game at the time, I resisted the temptation of having a few snap-shots with a gun. Later on in the day I returned expressly to get a few specimens, but only managed to bag one adult female and young one. On comparing the skins with the various *Madoqua* in the Natural History Museum I found one, an adult male, labelled Kilimanjaro and presented by Mr. H. C. V. Hunter, which tallied in every detail with my specimens, but this male was labelled *M. kirki*, which I feel sure is a mistake. Later on when more specimens have been obtained this little beast will no doubt be found to be quite distinct, and to range from Kilimanjaro up north as far as Nzowi Peak, if not farther.

			♀
Total length . . .		2 feet 2½ inches.	
Height . . .		1 foot 3½ "	
Tail . . .		2½ "	
Weight . . .		9½ lbs.	

Madoqua guentheri.—This is the smallest of the group found in East Africa, and Lake Baringo will probably prove to be the southern limit of its range. In September 1897 I saw several in the dry sandy bush country round Njemps, but only succeeded in bagging one, a fine adult male.

In August of the same year, whilst passing up the valley between Elgeyu and Kamassia, there were a good many *Madoqua*, which I have little doubt in my own mind belonged to this species, since those that I obtained farther north and north-east in Ngoboto and Turkwgel in 1890 were beyond a doubt *M. guentheri*.

			♂
Total length . . .		1 foot 11¼ inches.	
Height . . .		1 " 3¼ "	
Tail . . .		1¾ "	
Weight . . .		8¼ lbs.	

F. J. JACKSON.

SALT'S DIK-DIK (*Madoqua saltiana*)

Dik-dik OF KASSALA NATIVES ; *Beni Israel* OF ARABS ; *Atro* OF ABYSSINIANS

This is a very small slenderly-built antelope, with a curiously-elongated nose, the point of which, instead of being bare, is covered with hair. The crown of the head is tufted, the tail extremely short. The horns of the male, which are annulated for rather more than half their length, are from 2 to 3 inches long ; the female is hornless. In general colouring this diminutive creature, which stands but from 14 to 15 inches in height, is of a rufous-fawn, the neck grayish, the chin and under parts whitish ; the face and legs are rufous. The range of this dik-dik lies principally in Abyssinia—more especially towards the littoral—and Somaliland. It is not very well known to English sportsmen, and but few specimens have been brought home. It is fond of bushy country, and is seldom found at a greater altitude than 6000 feet. Found singly or in pairs.

SWAYNE'S DIK-DIK (*Madoqua swaynei*)

SOMALI NAME, *Sakáro gwyu*

This dik-dik was found by Major H. G. C. Swayne (author of *Seventeen Trips to Somaliland*) inhabiting the northern portion of Somaliland. It is even tinier than Salt's dik-dik, and a male weighs no more than 6 lbs., the female even less. Like the rest of the genus, it is extremely swift, and only the very young ones can be run down by the athletic Somalis. In colouring it has a general resemblance to Salt's dik-dik. The habits of this antelope are, according to Major Swayne, like those of the hare. It nibbles the young shoots of mimosas, likes to be near water, and drinks at mid-day and just after nightfall. These dik-diks lie very close, and when disturbed dash off with two or three sharp whistling notes of alarm, often disturbing heavier game. Although monogamous antelopes, as many as eighty have been seen in a single day.

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PHILLIPS'S DIK-DIK (*M. phillipsi*)

SOMALI NAME, *Sakáro gol-ass*

This, another of the Somali dik-diks, named after the well-known sportsman-naturalist, Mr. E. Lort Phillips, is found also in the northern half of Somaliland. It is slightly larger than Swayne's species, and the rufous colouring is somewhat richer. Its habits are almost exactly identical with those of its congeners, Salt's, Swayne's, and the other dik-diks, and, like them, it is to be found singly, or more often in pairs. It is very abundant upon the plains in the neighbourhood of Berbera.

THE DAMARAN DIK-DIK (*M. damarensis*)

This dik-dik, which is of somewhat larger size than the rest of the genus, has been discovered in comparatively recent years. Its habitat, as at present known, seems to be chiefly in rocky hills and partially bushed country, extending northward from Omaruru—about 60 miles north of Walfisch Bay, on the south-west coast of Africa—to the Portuguese province of Benguela. In general appearance the Damaran dik-dik resembles Salt's species, but differs from that form somewhat in the character of the skull. The horns of the male extend to about $2\frac{1}{2}$ inches. In its dentition and the prolongation of the muzzle this little antelope is more allied to the next species, *M. kirki*.

KIRK'S DIK-DIK (*M. kirki*)

SWAHILI NAME, *Paa*

This dik-dik, discovered by Sir John Kirk in Southern Somaliland, is distinguished by the proboscis-like prolongation of the muzzle, in which particular it resembles the Damaran and Günther's species. It is found in

East Africa from Southern Somaliland to Ngogo, and seems to be most plentiful near the littoral. The longest horns hitherto recorded are a pair in the possession of Mr. F. J. Jackson, measuring 3 inches. The general colouring of this dik-dik is grayish-fawn, tinged with rufous. The legs are rufous. It is fond of bush, and is obtained mostly with the shot-gun. With a few natives to drive, very good sport can be obtained with these diminutive antelopes. The *paa* is practically independent of water, and is found throughout the year, says Mr. Jackson, "in the driest and most arid wildernesses." The flesh has a strong flavour of musk, and is extremely unpalatable.

CAVENDISH'S DIK-DIK (*M. cavendishi*)

This is a species of which at present very little is known. Mr. H. S. H. Cavendish obtained it in 1897, during his expedition from Somaliland to the region of Lake Rudolf. Mr. Oldfield Thomas has described it (*P.Z.S.*, 1898, pp. 278, 279) as "allied to *Madoqua kirki* by general character of skull. Size decidedly larger, so that the new form equals and perhaps exceeds *damarensis*. Colour dark fawn,¹ grayish posteriorly, and quite ashy-gray on sides of rump."

GÜNTHER'S DIK-DIK (*M. guentheri*)

SOMALI NAME, *Sakáro gussuli*

This is another of the dik-diks found in East Africa. In colour this species differs from Salt's, Swayne's, and Phillips's dik-diks, and is of a grayish-fawn, exhibiting much less of the rufous tint. The nose is much more prolonged than in those species, and more proboscis-like in character, resembling almost the snout of a small tapir. This antelope is found upon

¹ There seems to have been some confusion among the skins collected by Mr. Cavendish, but there is little doubt that this description may be relied upon.

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the plateau of Central Somaliland, and thence into British East Africa. It differs little in size and habits from the other Somali dik-diks, but it may be noted that the horns are slightly longer, a pair measuring as much as $3\frac{1}{2}$ inches in length. Günther's dik-dik, too, is found in small companies, three or four at a time, instead of in pairs, and the females are, in the opinion of Major Swayne, somewhat larger than the males, so much so that it is safer, if the hunter wishes to bag a buck, to fire at the smaller animals as they start up. They give good sport with shot-gun or rook-rifle, and especially so in the evenings, "when they are at their liveliest."

H. A. BRYDEN.

THE WATERBUCKS AND KOBES

Genus COBUS

The members of this genus, together with the Vaal rhebok, belong to a sub-family of large or medium-sized African antelopes typified by the reedbucks, and hence known as the *Cervicaprinæ*. All have the muzzle naked, the face-glands rudimentary or wanting, the tail moderate, the lateral hoofs well developed, and the horns confined to the male sex. The upper cheek-teeth are of a narrow sheep-like type, and the second pair of lower incisors have expanded crowns. Pits for the reception of face-glands are wanting in the skull. In form the long or medium-sized horns of the bucks are never twisted, but are generally curved backwards at the bases, where they are strongly ridged, after which they curve upwards and forwards to the smooth tips; they may, however, have a sinuous flexure or be perfectly straight.

The waterbucks and kobes may be distinguished from the other members of the sub-family by their large size, long and somewhat lyrate

PLATE VII

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|--------------------------------|------------------------------|
| 1. Common Waterbuck Head. | 5. Uganda Kob Head. |
| 2. Sing-Sing Head. | 6. Buffon's Kob Head. |
| 3. Mrs. Gray's Waterbuck Head. | 7. Puku Kob Head. |
| 4. White-eared Kob Head. | 8. Lechē or Lechwe Kob Head. |



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horns, the straight and frequently coarse fur, the absence of a bare patch below the ears, the rudimentary face-glands, the long and slightly tufted tail, and the full development of the lateral hoofs. In the skull the bones forming the extremity of the upper jaw (premaxillæ) extend upwards and backwards to join the nose-bones (nasals), and there are deep pits in the forehead.

The following arrangement of the species may be adopted :—

A. True waterbucks of large size, with the hair grizzled and the neck maned.

1. Common waterbuck (*Cobus ellipsiprymnus*).
2. Sing-sing " (" *defassa*).
3. Mrs. Gray's " (" *maria*).

B. Kobs of smaller size, with rufous hair and no mane to the neck.

4. White-eared Kob (*Cobus leucotis*).
5. Uganda " (" *thomasi*).
6. Buffon's " (" *cob*).
7. Puku " (" *vardoni*).
8. Lechē (or Lechwe) Kob (*Cobus lechē*).

Of these, No. 2 may be divided into four local races distinguished chiefly by colour, while two such races may be recognised in No. 7. By many writers these races receive the rank of distinct species.

THE COMMON WATERBUCK (*Cobus ellipsiprymnus*)

The waterbuck is always called by the South African Dutch *Kring-gaat*. It is known to the Bechuanas as *Tumogha* ; to the Matabele as *Sidumuga* ; while the Makalakas call it *Etumuha* ; the Makobas *Mashigi-gig* ; the Masarwas *Gwelung-gwelee* ; and the Batongas *Mukulo*. The Swahili (East African) name is *Kuru*, or *Kulu* ; the Somali name, *Balango*.

This noble 'antelope, usually found, as its name implies, in the vicinity

of water, measures at the shoulder—I speak of the full-grown male—about 4 feet 4 inches in extreme height, while in length it attains rather more than 8 feet. The face is brown in colour, the forehead as well as the hair round the base of the horns and behind the eyes rufous. Space round muzzle and lower lip white. A white streak before the eyes, white throat-patch, and a remarkable white elliptical band over the rump, as it were encircling the tail. The general body-colouring varies from grayish-brown to rufous. The hair is very coarse in texture. Upon the neck the coat is very full, long, and reversed, in character somewhat like a rough mane. The ears are white inside, rounded and large; upon the outside they are brown in colour. Legs dark brown. The tail is brown, moderately tufted, and reaches barely to the hocks.

The male only carries horns, which attain in good specimens from 28 to 30 inches. The longest recorded pair of waterbuck horns are in the possession of Mr. F. H. Barber. They were procured near Delagoa Bay and measure $36\frac{1}{2}$ inches over the outer curve. The horns of the waterbuck are greenish-brown in colour, white towards the tips; they are thick and robust, tapering towards the point, strongly annulated for three-fourths of their length, and curve mostly forward, outwards, and, towards the points, inwards. A good pair, $33\frac{1}{2}$ inches in length, measure at the base slightly over 10 inches in circumference. Mr. J. G. Millais, in *A Breath from the Veldt*, says:—"I fancy that, after a certain age, the waterbuck rubs and wears his horns to a very great extent, as the majority of old rams one sees have very short, thick, stunted horns." Here he is undoubtedly correct. He goes on to add: "The best heads are those that are only just adult and whose bases are still slightly soft and full of blood." The animal is of robust build, thick and heavy in the body and short in the leg. It is distinguished by a strong scent, which is readily to be noticed, even by the European nose.

The waterbuck is gregarious and is found—in places where it has not

been over much persecuted—in troops of from half a dozen to twenty. When first discovered in South Africa, it seems to have been supposed that this antelope seldom, if ever, quitted the banks of rivers. This idea has been a good deal modified. It is true the waterbuck is extremely partial to the vicinity of water, but it is often found—sometimes in rough stony hills, sometimes in thick bush—at the distance of a mile or more from the nearest water. It runs usually, when pursued, in the direction of the nearest stream or river, though this is not invariably the case. In spite of its heavy build and short legs, the waterbuck is a most active antelope, climbing the steepest and roughest hillsides with ease, and at great speed, and, on the flat, in fairly open country, galloping at a great pace. Even the mounted hunter, if he should happen to surprise a troop of waterbuck in reasonably open country, will find that for a mile or more they will afford him a very stiff gallop before he can hope to close with them. But it is not often that the mounted sportsman obtains such a chance. As a rule he must expect to get his shooting amid trees and bush on or near the banks of some African river system, where often a quick snap-shot only is to be obtained. Where it has not been much shot at, however, the waterbuck not infrequently affords fairly easy shooting, and, even when chased on horseback, the troop will occasionally stop, after their first rush of alarm, and take stock of their pursuers.

In East Africa, Mr. F. J. Jackson has noted that these animals, besides being common in the neighbourhood of fresh water, are often found in the vicinity of salt-water creeks upon the coast. There seems to be little doubt that where it is much hunted this antelope takes more and more to the thicker bush and cover. In places where it is comparatively unmolested, it may be found in more open and thinly bushed country.

When pursued and hard put to it, this animal will enter the water and stand at bay, or seek shelter in the dense reed thickets so often met with in the vicinity of African rivers. When wounded, the waterbuck should

be approached with caution. It will charge savagely, and with its strong heavy horns is capable, not only of killing baying dogs, but of inflicting very dangerous wounds on its human foes. It should be added that this splendid antelope is an excellent swimmer, but, from a very reasonable dread of crocodiles, is not often found crossing the deeper rivers. The waterbuck feeds mainly on grass. Its flesh is perhaps the most unpalatable among all African antelopes; it is coarse and ill-tasted, and by European hunters is invariably avoided. The skin is tough and has excellent powers of resisting wet, and is much patronised by Transvaal Dutch hunters for the purpose of making *velschoons*, rude shoes of home-tanned hide which these people usually affect.

The geographical distribution of the waterbuck is extremely wide—indeed its range may be cited as one of the widest among all African antelopes. When first discovered in the centre of South Africa, this animal seems to have been found about the region of the Notwani and Marico Rivers, tributaries of the Limpopo, in the neighbourhood of the Tropic of Capricorn. It was apparently never heard of on the Orange, seldom, if ever, on the Vaal, and never in the territory of the old Cape Colony, south of the Orange River. But, from the Notwani and Marico Rivers, northward and eastward, its range extends far over the continent of Africa. It is now practically extinct on the two above-named rivers, but it is yet to be found here and there upon the Limpopo or Crocodile River. In South-East Africa it used to be fairly abundant in Zululand, Amatongaland, and the Swazi country, but has now become very scarce in those regions. Above Delagoa Bay, and thence to the mouth of the Zambesi, it is, however, often to be met upon the various streams and rivers. Along the Zambesi, in Mashonaland and Matabeleland, on the Botletli, Tamalakan, Okavango, and other rivers near Lake Ngami, and on the Chobi and other adjacent systems, it is still to be met with. Beyond the Zambesi, it is at once found in Nyasaland. In East Africa it is a common

species, being found there with its near relative the sing-sing. It is especially plentiful on the Tana River, and on the Weri Weri River, near Kilimanjaro. Its range extends as far north as Somaliland, where it is found south of Lake Baringo. In the dry deserts of South-West Africa it seems to have been unknown, and the late C. J. Andersson, a most observant naturalist and hunter, who travelled in the fifties much in Great Namaqualand and Damaraland, makes no mention whatever of this species. In Western Africa it seems to be unknown also, but, north of the Cunene, its place on the various rivers appears to be taken by Penrice's waterbuck (a closely-allied species), the sing-sing, and the kob.

The waterbuck bull is distinguished by a noble and very gallant port ; he carries his head as splendidly as does a red deer stag, and with his full dark eye, fine horns, and shaggy coat, is, seen among the wild solitudes in which he makes his home, one of the most interesting and truly feral of all African beasts of chase. A single bull is usually found consorting with a herd of from four to ten cows, although occasionally the troop is bigger. Solitary bulls are, too, not infrequently met with.

The waterbuck cow is, from lack of horns, nothing like so imposing a figure as the bull, and, except for her hide, which Boer and native hunters find useful, is, in consequence, not so much sought after. The cows are most vigilant sentinels ; their sight and hearing are remarkably keen, and they seem to be incessantly watchful. Both male and female of this species are, as with so many other African antelopes, exceedingly tenacious of life, and, although carrying dangerous and even mortal bullet-wounds, will travel very considerable distances and occasionally completely escape their pursuers.

The chase of the waterbuck has been described by many pens, but by none more accurately or more picturesquely than that of the great sportsman, Roualeyn Gordon-Cumming, one of the earliest of British hunters to follow the antelope into its own primeval fastnesses. Writing of his first

encounter with this animal in October 1846, he says :—" On the 18th I rode up the banks of the river with my dogs to seek for waterbuck, and arriving where another considerable river's bed joins the Ngotwani,¹ I came upon one, the first I had ever seen. He was standing among some young thorn-trees, within sixty yards, and had his eye full upon me. Before I could pull up my horse he was off at a rapid pace, and crossed the river's bed above me ; I shouted to the dogs and fired a shot to encourage them, but in half a minute the buck disappeared over a rocky ridge, with three or four of my best hounds within thirty yards of his stern. I knew that he would make for the nearest water, and accordingly kept my eye down the river, listening with an attentive ear for the baying of the dogs. Presently the noble buck appeared ascending a rocky pyramidal hill down the river-side with the agility of a chamois, and only one dog, Boxer, my best, at his heels. I galloped down at top speed to meet him, but was too late ; however I fired a long shot to encourage the dog, and next moment, in ascending the opposite bank, my horse fell and rolled down it very nearly on the top of me ; on regaining his legs Jock declined being caught, and made off for camp, followed by my after-rider. Alert at this moment came up, having eight or ten inches of the skin of his breast and forearm ripped clean up by the waterbuck. I now fancied that I had lost the quarry, but a little after I heard Boxer's voice as he came down the river-side with the buck, having once more turned him. I ran up the bank at my best pace to meet them, and found the buck at bay in a deep pool, surrounded by high banks of granite rock ; he would not, however, stand, but swam through the deep water and broke bay on the opposite side. Boxer held on, and following him up the river, once more turned him to this pool ; I met them coming down the water-course, and sent a ball into the buck's throat, which made blood flow freely from his mouth ; but he held stoutly on and plunged into the deep pool, standing at bay under a

¹ The Notwani, a tributary of the Limpopo, in Middle Bechuanaland.

granite rock. I then headed him, and from above put a bullet between the shoulder blades, which dropped him dead on the spot. He died as a waterbuck ought, in the deep water. My success with this noble and very beautiful antelope gave me most sincere pleasure."

It may be added that, south of the Zambesi, waterbuck calves are usually dropped between September and the end of November.

H. A. BRYDEN.

IN NYASALAND

Nyakodzwe OF ZAMBESI AND SHIRÉ RIVER NATIVES, AND OF THE
WA-NYASA ; ALONGA NAME, *Chuzu*

The waterbuck is perhaps the commonest antelope in British Central Africa ; and certainly one of the handsomest. The female is more common-looking than the male, as she has no horns.

When entering the Nyasa districts by way of the Shiré, large herds of waterbuck are seen near the banks of the river in what is known as the "elephant marsh." This is a large plain lying above the junction of the Ruo with the Shiré, which up to 1889 was frequented by many elephants ; it is now a strictly-guarded game preserve, in which great numbers of waterbuck, zebra, and buffalo roam unmolested. The waterbuck is plentiful throughout the Zambesi and Shiré valleys, and on the shores of Lake Nyasa. As its name would imply, it is almost always found near water, and generally on reedy plains and flats. It is less shy and wary than most other Nyasa antelopes, and is not difficult of approach. It is frequently seen close up to the outskirts of native villages, especially in the early morning.

The male only has horns. These are very handsome, annulated, and curve forward. The general colour is a darkish gray ; the hair is unusually long. The most characteristic markings are the two white bars

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on the rump and the white muzzle. The meat is coarse and strong in flavour; the milk of the female is very rich, more like goat's than cow's milk. I have tried the milk of most antelopes in British Central Africa, but do not consider any of them equal to that of the waterbuck.

This buck has great vitality, and will carry, at times, much lead. When wounded in open country, like the Elephant Marsh, I have always found it better to remain still than to quickly follow up, so long as sight can be kept of the wounded beast, as, if quickly followed, he will try all he can to get away to cover, whereas, if left alone, he will, after satisfying himself that he is not being followed, frequently lie down.

They can be very vicious when wounded. I remember well being once actually chased by a wounded female waterbuck. I was in want of meat for my men, and, seeing this cow in the distance, had gone out from camp with only a couple of cartridges. I followed her up a long way, and used both my cartridges. She was wounded, but could go slowly, and not wishing either to leave her to die in the bush, or to go back without the meat, I took a spear from one of my boys and tried to reach her with it. She flew round, however, with open mouth, and chased me for 30 or 40 yards. It is difficult to rear young waterbuck. I have tried several, but never succeeded.

ALFRED SHARPE.

THE WESTERN SING-SING (*Cobus defassa unctuosus*)

HAUSA NAME, *Dodoka*; YORUBA, *Doko*; *Sing-sing* OF GAMBIA NATIVES

The sing-sing antelope in West Africa, more generally known simply as the waterbuck, comes next to the roan antelope in weight and size, and the bull is not very far behind it in nobility of presence. The bull stands about 12 to 13 hands at the withers, and is lighter in the body than the roan, though more heavily built than other antelope. Its neck

is of moderate length, broad and well set on its shoulders, and its head approximates in shape to that of a pony, but is more inclined to taper towards the muzzle. The horns are set well on the top of the head, and curve slightly forward as a rule, with a very regular sweep until within a few inches of the point, where a slight set backwards is often found. The horn is ringed for about two-thirds of its length, and has but a small circumference at the base, thickening in the centre, and tapering gradually and evenly to the point. Length of horns varies from 22 to 31 inches. The head and neck are carried extremely well, and, with the exception of the roan, there is no antelope on the west coast whose port is more majestic. The grace of the sing-sing's lines is somewhat depreciated by its coarse rough coat, which is almost deserving of the epithet shaggy. The body-colour is of a dark gray, shading off into dirty gray-white on the under surface and about the muzzle and the eyes, the hair lying unevenly throughout the body. The hair on the neck, particularly towards the front, is longer than the body hair, being as much as 4 inches long, close up to the throat. The legs are clean and short-haired below the elbow-joint and the thigh, the longer hair being confined to the back of each leg. Ears are long and stand well out at the sides.

The female, which is hornless, is smaller and much less noble in appearance than the bull. Its head tapers more; its ears droop more; and its coat is even rougher than that of the bull, and is, as a rule, several shades darker. Its carriage is more of a slink; its head is held lower when standing at rest; and altogether it is much more donkey-like in appearance than its partner.

The sing-sing appears to range from Sierra Leone to Lake Tchad and behind the Cameroons, but whether it extends to the French and Belgian Congo or not I cannot definitely say. It is distinctly local in its habitat, for there are long stretches of Nigeria where it is not found, these chiefly consisting of dense bush country or swampy open plains.

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It must be on the *lucus a non lucendo* principle that it is known as a waterbuck, for it is found only in hilly and, as a rule, stony country. The upper slopes or flat crests of stony ridges are quite the most likely ground whereon to find it, though there it must rather be looked for in the precipitous gullies and nullahs which cut up the surface. When met with on the lower slopes it will invariably head uphill, and dash across the roughest boulders with amazing fearlessness and sureness of foot. The only time I have heard of them by water in any number was up the river Benue, well towards Yola, when an officer of the Royal Niger Constabulary, steaming up-stream, saw a herd of a dozen swimming across the river, which at that place was about three-quarters of a mile in width. He and an executive officer with whom he was travelling got into a ship's boat with some "boys" and paddled after them, coming up with them easily enough, and even succeeding in getting fair hold of the horns of a couple of bulls. But their strength was prodigious, and there was no holding them when they gained foothold at the bank, and the herd got clean away in spite of a couple of hasty shots at a range of 10 yards as they topped the bank above the boat. As a rule the sing-sing goes about in families, though occasionally, as in the above case, two or three families may be seen together. The young, which are dropped about Christmas, appear to remain with their parents for a much longer period than do the young of other antelope on the west coast, in fact almost until they arrive at maturity. It is also a curious fact that I have never seen a single young one, each pair of bull and female appearing with a couple of youngsters whenever I have come across a family; but I will not be certain that there has not been another cow in the immediate vicinity. With young about, the female is very wary and suspicious, and is ever on the watch, taking her food a mouthful at a time, and then standing watching carefully in every direction, or patrolling in a circle around the corner in which her young are feeding and gambolling. The sing-sing being a comparatively slow

mover, it is possible that the young are the especial prey of the lion and the hyæna, and that the increased wariness of the female is due to the knowledge that they stand less chance of saving themselves by speed.

But at the best of times the sing-sing is very shy and suspicious, and when alarmed rarely gives way to the antelopean curiosity which so often proves fatal. Only once have I known the bull stop to ascertain the cause of the alarm, and from the way in which he stood broadside on, gazing intently in a direction at right angles to that from which I—the cause of the alarm—was approaching, I judged that whilst quick in hearing, they possess even less power than the average antelope in locating the direction of sounds.

To stalk a party of sing-sing, even with all the advantages which the ground they frequent gives, is a most difficult business, they are so keenly watchful of everything. I have seen them start away for apparently no reason whatever, though it is always open to question whether the wind in those rocky hills and gullies does not at times play the most absurd pranks, and give notice of the observer's presence, even when he is directly down wind from the animals. I have never, in West Africa, felt so keenly the sharp contest of man's intelligence and reason against the keen wits and suspicions of an antelope, as in the planning and carrying out of a half-mile stalk of a sing-sing family.

On the other hand, it is much more of a certainty that the sportsman will come up with them if he follows on the fresh tracks of a party of sing-sing, than it is in the case of hartebeest or roan or kob. They do not wander much when feeding. Their chief object appears to be to make certain of their feeding-ground as a safe place, and then they remain in or about it for the morning or even the whole day. Thus fresh tracks may be followed up carefully and cautiously, and very silently must the hunter move, or he may easily give himself away, and may never see the beasts he is tracking. These animals are also difficult to discern, even when they are

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full in view, and until well used to the bush and to the antelope, it may easily happen that the hunter will be well within sight and shot and not see the game. My first sight of a sing-sing bull failed to give me a shot, for I could not see the beast, in spite of my shikari's reiterated whisper, "Shoot, sah ! kussa duchi" (near the stone). It was only when the antelope, a fine bull, started off at a gallop and disappeared almost instantaneously behind a boulder, that I saw he had been standing within 80 yards, by a big gray rock, against which he was indistinguishable to the eye of a novice. The flesh of the sing-sing is very coarse and unpalatable, being almost uneatable by the European, but the natives will eat it without reluctance.

A. J. ARNOLD.

CRAWSHAY'S SING-SING (*Cobus defassa crawshayi*)

CHUZWI OF THE AWEMBRAS AND THE PEOPLE OF ITAWA AND KABWIRI,
LAKE MWERU DISTRICT, BRITISH CENTRAL AFRICA

This antelope, a very near relative of the true waterbuck, is slightly smaller in size, and differs a good deal in colour, the prevailing tone of the coat being a bluish-gray, much darker upon the upper parts and neck. The rump is white, the tail, front of face, and lower portions of the legs very dark grayish-brown. The horns measure about 24 inches over the curve. This sing-sing has the same rough shaggy coat and "powerful ovine scent" as the true waterbuck, and indeed the rest of this group. It bears a strong resemblance to Penrice's sing-sing from Benguela. Mr. Alfred Sharpe writes of it :—

"There is another variety of waterbuck found in British Central Africa, in the Mweru districts. The *Cobus crawshayi* was first seen by Mr. Richard Crawshay in 1892, and skins were sent to England during that year by him and by myself. This variety is of a generally darker gray than *Cobus ellipsiprymnus*, and when seen in thickly wooded country

appears almost of the bluish-black colour of the buffalo. It is without the white bars on the stern, which are so distinct in *Cobus ellipsiprymnus*, and its horns are rather shorter."

H. A. BRYDEN.

PENRICE'S SING-SING (*Cobus defassa penricei*)

BENGUELA NATIVE NAME, *Chesema*

This West African waterbuck differs somewhat in colour and markings from the more southern type. It is very much darker, and when seen at a distance looks almost black. It is entirely without the elliptical white patch of hair over the rump which occurs in the South African waterbuck, and from which that antelope takes its scientific name, *Cobus ellipsiprymnus*. There is a very prominent blaze of white running down each buttock, and also a patch of white over the eyes, and on the muzzle and throat. The ears are, upon the outside, towards the point, a brownish-black, and shade off to a lighter colour towards the base; the insides are white. There is a patch of reddish-brown hair between the horns. The legs of the bull are very black, those of the cow a more brownish-black; the tail is short, black above, white below. The horns of the males bend forwards, the average measure over the curve being about 27 inches; the females are hornless. In size these waterbucks are similar to the South African species. These are a very local buck, their range being restricted to certain rivers; and, like the reedbuck, they never trek from one place to another, but keep to the same river all the year round. They are very fond of a marshy veldt, feeding on the open valleys mostly during the night, and retreating very shortly after dawn to the hills and thick bush. They appear to be rather stupid animals, being neither quick at hearing nor keen of sight; in consequence of this trait they are not difficult to shoot, but, at the same time, among the very toughest of antelopes in Africa to kill. They have a strong smell, and, walking through the veldt in which they have their

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haunts, one continually catches their odour. The flesh, although quite eatable, is not to be compared with that of the other antelopes. Bulls are by no means as numerous as the cows; in a day's hunting one might see six or seven different troops of waterbuck, yet it is more than probable one would not see a single bull amongst them. They appear to drop their young during August, giving birth to one calf only.

I first met with these buck in 1892 on the Kuvali River, at a vley known as Bongo; they were very numerous at this particular place, and, happening to shoot a bull, I preserved the head, and sent it to Mr. Rowland Ward's, in Piccadilly, to be set up. Mr. Ward pronounced it to be a new species of waterbuck, and asked me to send him the entire skin of a male and female. These I procured during the next hunting season, and on sending them to England the new form was established. These waterbuck are fairly plentiful on parts of the Quenene River. I have also met with them in large numbers on the Balombo River, to the north of Benguela, and again to the south, on the Coporole River. On this last-named river they were, however, very scarce.

G. W. PENRICE.

THE DEFASSA SING-SING (*Cobus defassa typicus*)

IN BRITISH EAST AFRICA

This waterbuck is not recognised by the Swahilis as distinct from the common waterbuck (*C. ellipsiprymnus*) found in the coast regions, and both are known to them by one name, *Kuru*. The Masai call it *Kibbuligoren*, and the Wanderobbo, *Kipkonoriandet*.

So far as I have been able to ascertain, it ranges as far south, but no farther, than Lake Naivasha. Here I have myself seen it several times. To the north it extends as far as Lake Rudolph, and was obtained there by Mr. H. Andrew in 1897. To the west it extends right away through

Uganda to the Semliki valley in Toro, and to the west side of Lake Albert, where it was shot by Colonel Ternan of the Uganda Rifles. Excepting in places thickly inhabited, such as Kavirondo and Usoga, it is more or less plentiful throughout the Uganda Protectorate wherever there is a sufficiency of water. They go about in herds of from four or five—one of which is nearly always a bull—up to twenty or thirty. In these larger herds there are generally five or six young bulls, but these are evidently driven off by the older and stronger ones during the rutting season, as I have often seen



FIG. 28.—Defassa Sing-Sing Antelope (*Cobus defassa*), in the Woburn collection.
From a photograph by the Duchess of Bedford.

a herd of as many as fifteen young bulls together. In their turn the younger bulls drive out the old ones, which are frequently met with entirely by themselves. I have put down Lake Naivasha as the most southern point of the range of this antelope, and am under the impression that *C. ellipsiprymnus* is not found inland north of the Athi River, a distance of only 60 miles, although it ranges much farther north nearer the coast. Even the most casual observer will be able to distinguish them at a glance by the white markings on the stern, the waterbuck under discussion having a large white patch, whilst its near relation, as its scientific name implies,

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has merely a white elliptical line on each buttock. The defassa singings are also larger and heavier beasts than the *ellipsiprymnus* found in East Africa, and although they vary a good deal in colour according to age, they are also on the whole much darker and have a good deal of rufous hair on the upper part of the face and back of the head. Their coat is very rough and coarse and also very greasy. The hair on the neck of the cow is longer than on the bull, and stands up close to the head, forming a small ruff round the throat. As a trophy the head of a good 'defassa is incomparably superior to the East African waterbuck, as I have seen two beautiful heads with horns of 33 inches, whereas 29 inches is an exceptionally fine head for a waterbuck, the average being under 27 inches. In Toro, where the two heads mentioned above came from, and on the west side of Lake Albert, the beasts are far and away finer than those from any other part, and I believe Major Sitwell obtained one in 1897 with 36-inch horns. Why certain antelopes should differ so much, not only in size but in the development of horn, in various localities, even where these are only a comparatively short distance apart, is one of the most interesting of natural history problems, and one which I do not think will be solved by even a most careful field naturalist, without the aid of science. That the chemical properties in the grass have a great deal to do with it, I think there can be no doubt; but who can analyse and find out the component parts of the grasses from various parts unless they have all the appliances, and can visit the localities for the purpose. Perhaps if samples of the soil were sent home for analysis, it might help us considerably. Of one thing I am myself convinced, that the quality, judged from external appearance, *i.e.* the luxuriance and fine or coarse look of the grass, has nothing to do with either the development of horn or size of a beast; neither does it at all follow that a species which is larger and heavier in one locality than in another has a finer horn-growth; in fact it is often the reverse.

The defassa, like all the waterbucks, is never found far from water, and very rarely far from bush or other cover, into which it can retire for safety, though occasionally it is seen, in places where it is seldom disturbed, a good long way out on the open plains in the early morning. Compared with other antelopes, it is a tame beast, and is not difficult to stalk even in places where other game is quite unapproachable. On one occasion, at the south end of Lake Nakuru, where they are very numerous, and where, from being constantly harassed by the Wanderobbo, the hartebeest and *Gazella granti* were so wild that they went clean away when I was half a mile off, two lots of defassa, standing and lying down under the shade of large isolated trees, allowed me and my gun-bearers to walk past them within 120 yards, and even when the caravan came up they only moved about 50 yards farther off. On another occasion, at Baringo, I walked past a small herd within 80 yards, and beyond standing and gazing at me in their delightfully inquisitive-looking way, they took no notice of me.

The cows drop their young from about the middle of December to the end of February. The calves are hardy, jolly little beasts, and very soon become remarkably tame in captivity. One I have at the Ravine Station was eight months old when I left in August 1898, and was then a little more than half grown. He was quite tame and had the free run of the whole place, but never went far from the fort and returned again regularly about four o'clock. His horns were just beginning to show when I left, while his companion, a young cow hartebeest, *Bubalis jacksoni*, which was two months younger, had already developed horns over 2 inches long.

The measurements and weights of a bull and cow taken on the spot, not gralloched, are as follows:—Bull, total length, 8 feet $1\frac{1}{2}$ inches; height at shoulder, 4 feet 3 inches; tail, 1 foot $3\frac{1}{2}$ inches; weight, 487 lbs. Cow, total length, 7 feet 8 inches; height at shoulder, 3 feet $8\frac{1}{2}$ inches; tail, 1 foot $1\frac{1}{2}$ inches; weight, 395 lbs. The cows have four teats.

F. J. JACKSON.

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MRS. GRAY'S WATERBUCK (*Cobus marie*)

DINKA NAME, *Abokk* ; NUEHR NAME, *Til*

This very rare waterbuck is, with the next species, *C. leucotis*, amongst the handsomest and most striking of all the African water-loving antelopes. The rich dark reddish-brown coat, the singular white markings upon the head, back of neck, shoulders, tail, and under parts, and the fine horns, render it a prize worthy of any hunter's toil and skill. The ears, upper part of the head, and a space in front of the eyes are whitish. A space round the lips, together with the chin and throat, are clear white. The front of the face is very dark brown. A pure white Y-like marking runs from the back of the ears down the nape of the neck, and widens out into a broad saddle-like patch upon the withers. Spotless white markings are also noticeable along the sides from the shoulder to the middle of the lower part of the barrel, upon the hips, and along either side of the tail. There is a white marking round the hoofs, and the centre of the belly and the inner parts of the limbs are white also. This waterbuck stands from 3 feet to 3 feet 6 inches at the shoulder. The horns, which have a peculiar sinuous twist, range, so far as at present known, from 26 inches to 30 inches in length over the front curve, with a circumference of about 6 inches. The longest recorded pair, in the possession of the Berlin Museum, measure $30\frac{1}{4}$ inches, 17 inches from tip to tip, and $6\frac{1}{2}$ inches in circumference. There is a good pair, measuring $29\frac{3}{4}$ inches, in Mr. Walter Rothschild's Museum at Tring. Altogether a most remarkable waterbuck this, the contrast between the rich dark chocolate of the general body-colour and the white markings being almost unique among antelopes. If the Boers ever encounter it in their trekkings north, they will no doubt christen it the "Bonte-kringaat" or "Bonte-waterbok"—pied waterbuck !

Mrs. Gray's waterbuck was named after the wife of the celebrated zoologist, Dr. Gray, and was first discovered by the German naturalist Von Heuglin in 1855. It was well known to Consul Petherick, a famous sportsman and traveller, on the Nile and its affluents in the early sixties; but very few examples have reached Europe, and the animal is practically unknown to latter-day hunters. Now that the Nile and its western tributaries are to be opened up and the Bahr-el-Ghazal is to be rescued from Mahdism, it is probable that British sportsmen will not be long in re-discovering this splendid water antelope.

Its habitat lies mainly among the swamps of the White Nile, the Bahr-el-Seraf, the Bahr-el-Gebel, the Bahr-el-Ghazal, the Sobat, and other remote Nile regions, where it ranges in large troops. It is possible that British officers recently stationed at Fashoda and Sobat may have again heard of and even procured specimens of this antelope.

H. A. BRYDEN.

THE WHITE-EARED KOB (*Cobus leucotis*)

NIAM-NIAM NAME, *Kala*; SHOOLI NAME, *Teel* (practically the same as the Nuehr name for Mrs. Gray's waterbuck, viz. *Til*); DJENG NAME, *Kul* AND *Wuil*.

This kob is found in almost precisely the same Nile regions as Mrs. Gray's waterbuck, and has been occasionally confused with that animal. It is, however, smaller and slimmer in build, besides being different in colouring, especially in lacking the curious Y neck-marking so conspicuous in Mrs. Gray's waterbuck. The general colouring is a rich brown, with a tinge of fawn. The upper parts of the head for some distance round the eyes, as well as the ears, are white, as are the muzzle, chin, and throat. About the middle of the neck the brown body-colour appears again, to be succeeded a little lower by the conspicuous white marking of the chest

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and under parts. The insides of the limbs and the fetlocks are also white. The outer portions of the limbs are blackish-brown. The horns of the male run from about 17 to 21 or 22 inches, the best recorded specimen, in the Paris Museum, measuring $21\frac{5}{8}$ inches over the curve. The female is, like the rest of the waterbucks, hornless. This antelope stands at the shoulder about 35 inches, a mounted specimen in the Turin Museum measuring exactly that height.

This remarkable water antelope, which has much the same curiously "pied" appearance as its near congener Mrs. Gray's waterbuck, has apparently a somewhat wider range southward. Schweinfurth, in his well-known *Heart of Africa*, mentions having found it very plentifully on the rivers of the Niam-Niam country, where it ranged in large troops, numbering as many as 300 individuals, and Junker seems to have met with it on the Upper Welle. It has the same trick of leaping in the air in its gallop—when pursued or startled—as has the lechwe, another of the water antelopes, a distant southern cousin of this kob. Although familiar to Petherick, Baker, Heuglin, and other travellers of the sixties and seventies, the white-eared kob is at the present day almost completely unknown to sportsmen.

H. A. BRYDEN.

THE UGANDA KOB (*Cobus thomasi*)

BRITISH EAST AFRICA



NATIVE UGANDA NAME, *N'sunu*

The history of this waterbuck's scientific name is rather a curious one, and clearly shows how difficult it is for even scientific naturalists to determine a species, unless sportsmen and field naturalists do their utmost to help them by procuring good specimens of whole skins and other data. For years the missionaries in Uganda had known this beast; it was

mentioned by Speke and Grant, and also by Stanley ; but it was not brought home, not even a head which adorns the prow of every Uganda canoe, until 1890, when I sent to the Natural History Museum a skull and the complete skin of one shot by myself in Kavirondo. At first it was thought to be *C. vardoni*, and was labelled as such, until I think Mr. P. L. Sclater pointed out the difference between it and the mounted specimen of *C. vardoni* from the Chobi River, shot and presented by Mr. F. C. Selous. It was then named and labelled *C. kob*, and remained as such until 1895, when Mr. Oscar Neumann, a German naturalist, brought home from Uganda a series of flat native-tanned body skins, minus the head and feet, and several skulls, which he presented to the Berlin Museum. Here he and Dr. Matschie went into the question, and on comparing them with the kob of West Africa, they came to the conclusion that there was again a marked specific difference, but could not satisfactorily settle the question without reference to the complete specimen in our Museum. Of course, permission was most readily given, on condition that the specimen from which the description was made should be considered the type, a concession at once agreed to by Mr. Neumann, who came over to London and described the beast fully. It now bears the name *C. thomasi*, after our distinguished naturalist, Mr. Oldfield Thomas of the British Museum.

With the exception of a few found on the banks of the Nzoia River, as far as the junction of the Guaso Masa, and perhaps a few on the Sio River in Kavirondo, it is confined to Uganda, Unyoro, Toro, and the Nile Valley.

In 1889 and 1890 these kobs were plentiful in Kavirondo, on the banks of the Nzoia River, and I once saw a herd of quite twenty-five, all of which were bucks, in the angle formed by the two rivers and within four miles of Mumias. On the Uganda side of the Nile, in the vicinity of the Ripon Falls, there were also a good number, but the grass, when I was there, was so long that hunting them with any hope of success was out of the question. It was easy enough to see them from the coign of vantage of a

rolling hillside, as they fed in the swampy hollows in the early morning, but when it came to descending the hill and plunging into the tall, thick, and soaking wet grass it was quite another thing, and was next to impossible to locate them. Even if one struck the right spot, the noise made in forcing a way through the grass frightened them away. I have never been to Toro, but from what I have been told by others who have, it would appear to be of all other places the headquarters of this waterbuck, particularly that part of the country bordering the shores of Lake Albert Edward near Katwi. Here the grass is not too long and they can be fairly stalked out in the open.

In Uganda the natives kill a good many by the aid of dogs and nets, into which they drive them and then club them to death. They do not spear them, as this would spoil the skin, which to them is of considerable commercial value, there being a ready sale for it amongst themselves after it has been tanned, an art in which they are quite adepts. The horns are used to adorn the long neck-like prows of their canoes.

These kobs are never found far from water. In Kavirondo, at one time and another, I saw a great many, but never once farther than 300² or 400 yards from the river bank. When disturbed, they will go off parallel to the river rather than retreat any distance from it, and, like the hartebeest, they know thoroughly well the advantages of an ant-heap from which to scan the country for approaching danger. This habit appears to prevail much more amongst the bucks than the does. I know few prettier sights than one of these bucks standing on the top of an ant-heap in the early morning, doing "sentry go," while the does are quietly feeding round about him. His bright colour¹ makes him a very conspicuous object at long distances when the sun is low and behind the hunter. At other times they are by no means so easy to detect, and I have often had them pointed

¹ A vivid yellowish-brown, resembling the colour of the lechwe, but brighter. A full-grown male stands close on 3 feet at the shoulder. The longest recorded pair of horns measure 20½ inches over the curve.—Ed.

out to me by the local natives, yet been quite unable to make them out until they have either moved or I have changed my position by walking to the right or left. This made them appear in a different light, when of course one wondered how on earth it was that one could be so stupid as not to see them before, and felt inclined to blame oneself, and not take into consideration that provision of nature by which the beast should be practically invisible in certain lights.

F. J. JACKSON.

BUFFON'S KOB (*Cobus kob*)

HAUSA NAME, *Maria*; IGARA NAME, *Abēdi*

This kob is quite the commonest antelope of West Africa, when once the dense bush-belt which runs more or less parallel to the coast is passed. Of no great size, standing only from 29 to 33 or 34 inches at the shoulder, it is also perhaps the most graceful of the West African antelopes, whether at rest or in motion.

A buck barely mature, and certainly lacking the weight of years, measured 31 inches at the shoulder and 36 inches in girth just behind the fore-leg. It was $45\frac{1}{2}$ inches from between the ears to root of tail, its tail was 10 inches long, and the horns were $15\frac{1}{2}$ inches along outside curve, and $8\frac{1}{2}$ inches between tips. With coats of a bright brown-red, shading off into white on the under surfaces, a herd of kob, feeding on the short green grass of the early rains, forms, particularly in the sunlight, a perfect piece of colour. With the exception of the harnessed antelopes, the coat of this kob is the finest in texture and most brilliant in colour of all the West African antelopes. The hair is short and lies very close to the skin throughout. The knees and upper front of the fore-legs shade off into a deep brown which is almost a black, but, apart from this and the white of the belly, the coat is uniform in colour. The effect of sunlight on the apparent colour of an animal is never more plainly shown than in the case of the kob.

With a strong sun shining full upon the coat from behind the observer, the brilliance of the red is brought out to intensity; but with the sun beyond the animal or under a gray sky, the red partakes more of a light brown, which against the dry grass of the plains is difficult to discern.

The horns are very regular and even, and possess a very graceful treble curve, curving forwards slightly, then backwards and outwards, and finally forward again to the points. They are carried well laid back from the head, so much so when in motion that it is then somewhat difficult to determine whether a flying animal is a buck or a doe, the latter being hornless.

The range of this kob extends throughout the basins of the Niger and the Benue, and it is, I believe, plentiful also in the Cameroons and on the south-west coast of Africa.¹ In the basin of the River Benue, and particularly on the left bank, it is plentiful enough for its skin to become an article of export, and many thousands are obtained yearly by the native Mitchi and shipped to Europe. The trade appears to have been going on for years without any diminution of the herds, which are very large and numerous. Herds of several thousands may be seen feeding amongst the low-lying swampy plains of the Benue; and in this respect it is the only antelope which in West Africa reminds one of the stories of the South and East African herds in the early days of exploration.

Though by no means confining their feeding to the succulent shoots of marshy grass, they are rarely found far from the swampy marshes of the big rivers. They may wander browsing over intervening stony ridges from one large tract of marshland to another, and may in the wet season even lie up on the drier upper slopes, but as a rule they prefer the swamps, or rather that flat low ground which is a swamp in the rains and dry in the dry season. When the latter season has been running a month or so, these swamps become dried up, the grass is burnt, the ground is baked as hard as a rock, the short grass shoots up, and the kob confines itself almost entirely

¹ This kob is not known below the Congo, if so far south.—Ed.

to them, lying up after feeding in compact bodies as far as possible from the edge of surrounding bush. It does not appear to trouble about shade even at mid-day, and lies out in the full glare of the sun on the hard-baked ground, which in itself is often hot enough to scorch the feet of the native.

In hunting the kob when herding together, the great difficulty is to get within shot. When feeding they scatter a little, and then it is more often possible to get within range of an outlying party containing a decent head; but when lying up, unless they have made the mistake of lying up close to a patch of bush, it is almost useless to try to get a head. They lie so close together that it is impossible to single out a head from any distance beyond 100 yards, and they will not, at the best of times, suffer an approach nearer than 200 yards. But though herding together as a rule, a solitary buck, or a pair, is frequently met with on the edge of the swamps. With these lies the best chance of getting a head. The buck can be watched feeding along until he gets into such a position as to give the sportsman a chance of creeping up within shot, and the stalk can then be carried out with little or no difficulty.

The kob is not a very suspicious or wary animal, and what suspicions it may have are somewhat easily allayed in the case of single animals. More than once I have knelt in full view of a buck, and by dint of remaining absolutely rigid have so soothed its suspicions that it has fed right up to within 50 yards and given me an excellent shot. I have also heard of a doe similarly feeding up to within 10 yards of a sportsman who knelt and remained immovable.

When alarmed and set going, the kob flies off at a leaping gallop, springing over every little obstacle, such as a tuft of high grass, with remarkable ease and much superabundant energy. It will clear a height of 6 feet in a bound without any apparent effort, and appears to delight in the mere act of jumping.¹ It gets through a tract of the thick dry jungle

¹ This trait is very like that of the lechwe, farther south.—En.

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grass, 6 to 8 feet high, by a succession of leaps, and there are few prettier sights than that of a buck kob when alarmed traversing such a bed.

The kob is also a good swimmer, and will not hesitate to cross the Niger or Benue at their broadest parts, 1 to $1\frac{1}{2}$ miles, when alarmed or desirous of changing its feeding-ground. It swims very low down in the water, the nostrils, eyes, ears, and horns being about all that appear above the surface, and it gets through the water at the rate of about 6 miles an hour.

The flesh of a young buck kob is decidedly palatable, and is always an addition to the table of a hunting camp.

A. J. ARNOLD.

THE POOKOO (OR PUKU) KOB (*Cobus vardonii typicus*)

Impookoo OF MASUBIAS; *Muntinya* OF BAROTSI; *Seûla* IN CHILALA AND
CHIBISA COUNTRIES

The range of the pookoo antelope in Southern Africa has always been a very limited one, and I think it very probable that this species has now been altogether exterminated in the only district where it ever existed to the south of the Zambesi, viz. the small strip of country extending from the junction of the Chobi and the Zambesi westwards for some 60 or 70 miles along the southern bank of the Chobi River, and eastwards along the southern bank of the Zambesi as far as the Victoria Falls. The first pookoo I ever saw was standing grazing on the very brink of the great falls of the Zambesi, and was so enveloped in the dense clouds of spray and mist which continually rose from the vast chasm below it, that we had walked within 20 yards of it before it became visible. One of our party then shot it, and it was recognised by some of our native attendants as a female pookoo.

This was in June 1874. From the Victoria Falls we followed the course of the Zambesi westwards, always keeping close to the water's edge along the southern bank, but none of our party ever saw another pookoo antelope until we had reached the mouth of the Chobi River. From that

point westwards, however, for some 60 miles along the southern bank of that river, pookoo antelopes were very numerous. During the first day's journey along the southern bank of the Chobi I recorded in my journal that "from time to time herds of pookoo antelopes, disturbed by our approach whilst feeding close along the water's edge, eyed us curiously and then bounded up into the jungle"; whilst a few days later I wrote of some open stretches of level alluvial ground lying between the bank of the river and the forest-clad ridges to the south, "the number of pookoo on these flats quite surprised me. Sometimes troops of more than fifty of them were to be seen together, males and females mixed, or again small herds of ten or fifteen old rams, forming, I suppose, a sort of bachelors' club."

In 1877 I visited the Chobi River a second time, and hunted for several months along its southern bank, but although this was only three years after my first visit, when I had found pookoo antelopes so numerous, these animals had already become excessively scarce; in fact, had almost ceased to exist. The extermination of the pookoo in this part of Africa was due to a political convulsion amongst the Barotsi tribe on the Upper Zambesi, as, during the year 1876, shortly after the assassination of Sipopo, the chief of the Barotsi, large numbers of natives fled from their homes on the Zambesi, crossed the swamps of the Chobi, and camped all along the southern bank of that river, just in the pookoo ground. As these animals were confined to the narrow strips of ground between the bank of the river and the forest-covered sand ridges, the greater number of them were soon shot down or caught in pitfalls, and the few that were left when, peace having been restored, the refugee natives had returned to their homes on the Zambesi, seemed likely, at no distant period, to be completely exterminated.¹ During this period of persecution no pookoos moved either farther

¹ Happily this is not the case, as Mr. Percy Reid met with pookoo antelopes in small numbers on the southern bank of the Chobi to the west of Kazungula in 1895, and thinks that they are likely to increase in numbers, as the few natives now living in or near that locality have little or no ammunition.

westwards along the Chobi, or eastwards along the Zambesi towards the Victoria Falls, for though I found a few of these antelopes still surviving in their old haunts in 1877, there were absolutely none either to the east or the west of the small tract of country in which they had been so plentiful in 1874. Both the pookoo and the lechwe were first discovered by Dr. Livingstone, the latter on the Botletlie River in 1849, and the former apparently on the Upper Zambesi above Libonta in November 1853. When Livingstone and Oswell visited Linyanti in 1851 they crossed the Chobi farther west than the range of the pookoo, but it seems curious that they did not notice any of these antelopes when they visited Sesheke, on the Zambesi, in 1851, as pookoo must then have been numerous in that neighbourhood. In 1853 again Dr. Livingstone, whilst journeying up the Zambesi from its junction with the Chobi to the falls of Gonyi, must certainly have seen many herds of pookoo antelopes, but he does not seem to have noticed this species (then new to science), and certainly never makes any reference to it in the narrative of his travels until after passing Libonta, in the Northern Barotsi country. A plate in the good doctor's book *Missionary Travels*, entitled "New African Antelopes discovered by Oswell, Murray, and Livingstone," would lead one to suppose that the pookoo as well as the lechwe was first met with in the Lake Ngami country; but this can scarcely have been the case, as neither Andersson nor Baldwin, who both visited the lake shortly afterwards, and who were both keen naturalist-hunters, ever met with it there, and so far as I have been able to discover, none of the native tribes living on or near Lake Ngami are acquainted with the pookoo, nor have they any name for it in their various languages.

During a canoe journey down the Zambesi from the Barotsi valley to the mouth of the Chobi in 1888, I found pookoo antelopes thinly scattered along both banks of the river below the falls of Gonyi, but never saw more than seven or eight in a herd. Nowhere in this part of Africa,

therefore, are they likely to be found at the present day in anything but small numbers; but as their range extends right across South Central Africa to Lake Tanganyika, it is to be hoped that this interesting species will not become extinct for a long time to come. As a rule pookoo antelopes are found in small herds of from three or four to a dozen in number, though, as I have remarked above, I have seen as many as fifty together in a part of the country where they used to be plentiful. Old rams live alone, or several of them consort together, and I once saw a herd of fifteen pookoos composed entirely of old males. I have never met with pookoo antelopes at a distance of more than 200 or 300 yards from the river they frequented, and they are usually found grazing close along the water's edge. In habits they appear to me to resemble the waterbuck rather than the lechwe antelope, as, like the former animal, they live on dry ground close to the bank of a river, and lie resting during the heat of the day in the shade of trees and bushes, but are never found in the treeless flooded grass plains, in which situations alone lechwe antelopes are to be met with.¹ I have never seen pookoo and lechwe antelopes consorting together, and the habits of the two species are so very different, that I find it difficult to believe that they ever do so, although doubtless the two species may in some places be seen feeding near to one another. I have, however, frequently seen pookoo and impala antelopes feeding together. These two species stand just about the same height at the withers (about 3 feet), but the heavy, rather clumsy-looking forms of the first-named antelopes contrast very strikingly with the light and graceful proportions of the latter. The colour of the pookoo is a uniform yellow-red, deepest in colour over the back and haunches, and over the loins the hair is often long and curly. The tips of the ears are always black at all stages of growth.

¹ During the dry season of African winter my hunting companion, Mr. W. Dove, and myself found lechwe along the Botletli River, Ngamiland, feeding on hard, sun-baked alluvial flats, from which the water had long since receded, and upon one or two occasions were even able to chase them on horseback, when they ran always for the reeds and lagoons by the main river.—Ed.

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The males alone bear horns, which are of a brownish hue. They resemble in shape the horns of the lechwe, but are much shorter, and lack the graceful curves which distinguish the horns of that species. I have seen a pair measuring 18 inches in length, and I believe that a length of nearly 19 inches has been recorded.¹ In 1874 I have no doubt I might have secured some very fine specimens of pookoo horns on the Chobi River if I had shot a number of rams and picked out the heads with the longest horns. However, I seldom interfered with these animals, and only shot a few of them for food, amongst them two adult rams, whose heads I still have in my collection. The horns of both these specimens measure 16 inches, which is probably about the average length of the horns of full-grown males of this species in that district.

When a pookoo antelope is wounded it does not, as a rule, at once make for water, but usually runs straight away from the river, and seeks refuge amongst bush and forest. If followed up, however, and hard pressed, it will take to the water, and swim boldly across a crocodile-infested stream in order to escape from its pursuers. The meat of the pookoo is inferior to that of any other South African antelope with which I am acquainted, being coarse and flavourless even when the animals are in good condition. Pookoo antelopes must, I think, drop their young somewhat later than most other South African antelopes, probably in November and December, as I do not remember to have seen any newly-born kids amongst the many herds of these animals that I saw on the bank of the Chobi in September and October 1874. The pookoo is not naturally a very alert animal, and when I first met with it, at a time when the country in which I found it was almost virgin ground for the European hunter, it always appeared to me to be duller of sight and more easily approached—against the wind of course—

¹ Since this was written several remarkably fine pairs of pookoo horns have been brought to England from the neighbourhood of Lake Bengweolo by Mr. Frank Smitherman. One of these pairs of horns is very much larger than anything I ever saw in the Chobi, being not only very long (20½ inches) but also remarkably thick and heavy.

than any of the other species of antelopes which frequented the same ground. When much persecuted, however, these animals doubtless learn wisdom from experience, and become more wary and more difficult to circumvent. Like the lechwe they are exceedingly tenacious of life.

F. C. SELOUS.

THE POOKOO KOB—SENGA RACE (*Cobus vardonii senganus*)

Sewula AND *Seyula* OF SENGAL NATIVES

This sub-species has been only recently discovered (1895) in the Senga country, in the valley of the Loangwa River, to the north-west of Lake Nyasa. Mr. Richard Crawshay was the discoverer, and he has furnished practically all the information yet obtainable to Messrs. Slater and Oldfield Thomas, who have incorporated it in their excellent work, *The Book of Antelopes*. Only one specimen, a female, shot by Mr. Crawshay, has hitherto been described.

This new kob, evidently very close to the typical *Cobus vardonii*, is described as somewhat smaller in size and very similar in appearance, but with more black on the head and ears and the general colour deeper. It was obtained at an altitude of 2500 feet, and is described by Mr. Crawshay as "a native of dry, hilly country, often rough and stony, and far from any swampy land, though near a river."

H. A. BRYDEN.

THE LECHWE KOB (*Cobus lechi*)

Lechē, *Lee-gwee* OF MAKOLOLO AND NORTHERN BECHUANAS; *Inya* OF MASUBIAS; *Oonya* OF MAKOBAS

The lechwe, or rather lee-gwee antelope, to give its name the correct native pronunciation, is only found in the neighbourhood of those portions of the larger rivers of Central and South Central Africa where, the banks being low, there are large expanses of country which are always inundated,

or in which large shallow lagoons are constantly present, as the result of the annual overflow from the river. It is therefore, or perhaps I ought to say was, particularly plentiful in the open grassy plains, which are always more or less inundated by the overflow from the Tamalakan, Mababi, Machabi, Sunta, and Chobi or Quando Rivers. In the Barotsi valley, on the Upper Zambesi, it used to be very abundant, as also along the swampy rivers flowing into the Upper Zambesi from the east, such as the Majili and the Lumbi; but along the course of the Zambesi itself to the south of the Barotsi valley it is nowhere found except in the flat swampy ground between Sesheke and the mouth of the Chobi. In 1878 I met with large herds of lechwe antelopes in the swamps of the Lukanga River, a tributary of the Kafukwe, about 150 miles south-west of Lake Bengweolo, and as it has also been described as abundant in the neighbourhood of that lake as well as on the shores of Lake Mweru, this species must have a more extended range beyond the Zambesi than it has to the south of that river. In 1879 I met with the lechwe antelope amongst some lagoons on the lower Botletlie River not far from Lake Komadau, where Dr. Livingstone probably originally discovered this species in 1849. Personally I have never met with lechwe except in flooded ground, or the immediate vicinity of such ground, and if we except the *situtunga* (*Tragelaphus spekei*), there is no other species of antelope to be found in Southern or South Central Africa that so well merits the name of water antelope as the lechwe.¹ The waterbuck, pookoo, and reedbuck live and feed on the banks of rivers and

¹ Mr. H. A. Bryden, who visited the Botletlie River in 1890, met with lechwe antelopes at a distance of a mile and a half from water. Farther north I have never seen these antelopes at anything like that distance from water, and as the lower Botletlie is the extreme southern limit of the lechwe's range, it is possible that the habits of this species have there become slightly modified in the struggle for existence, and that necessity compels them to go a considerable distance from water in order to obtain a sufficiency of food. The fact that in the lechwe the backs of both the fore and hind pasterns are quite naked, as in the *situtunga*, shows that this species has been long accustomed to stand in wet ground, and where it is really at home, as in the flooded meadow-lands of the Chobi, the Upper Zambesi, and the Lukanga Rivers, it is nearly always met with actually standing and feeding in shallow water.

See my note as to lechwe on p. 297.—Ed.

round the edges of swamps, but it is an undeniable fact that these three species all like to keep their feet on dry ground. The lechwe, on the contrary,—at least I have found this to be the case wherever I have met with this species—spends the greater part of its life knee-deep in the water, grazing over flooded plains or in shallow lagoons, where the depth is

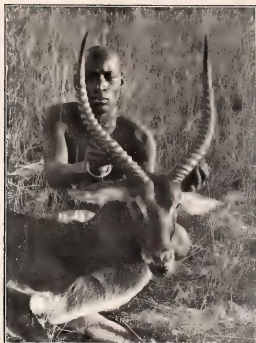


FIG. 29.—Head and fore-quarters of Lechwe (*Cobus lechii*).

From a photograph by Mr. Poulett-Weatherly.

insufficient to entirely submerge the young reeds and grass, on which it feeds. When resting, these antelopes lie either just on the water's edge, or actually in the shallowest part of the water.

The hoof of the lechwe is longer than in the waterbuck, reedbuck, or pookoo, but as it frequents flooded ground where the bottom is firm, it has not developed the excessively long hoof which is necessary to the *situtunga* to prevent it from sinking in the *Palmyrus* swamps frequented by

that species. The feet, however, of both the lechwe and situtunga are alike in that they are devoid of hair at the back of the hoofs up to the dew claws, black hairless skin taking the place in both these species of the thick covering of hair which is present behind the hoofs of every other species of antelope found in South Africa. I have read in standard works on the life-history of African antelopes that the lechwe and pookoo are in the habit of consorting together. Personally I have never seen lechwe and pookoo antelopes feeding together, and the two species frequent such different kinds of ground, that I cannot believe they would ever be likely to mingle except under very exceptional conditions. It is true that when elephant hunting on the Chobi a quarter of a century ago, I often saw herds of lechwe and pookoo antelopes feeding within a mile, or even half a mile, of one another ; but then the pookoo were grazing on the dry ground along the southern bank of the Chobi, where there were no lechwe, whilst the latter were standing about in hundreds, knee-deep or belly-deep in the flooded grass plains on the other side of the river ; and on these flooded plains there were no pookoos.

The lechwe is by far the handsomest of all the *Cobus* group of antelopes inhabiting the more southerly portion of the African continent ; for though smaller than the waterbuck, it is richer in colouring and more graceful in movement than that species, whilst if the horns of the males of the lechwe and waterbuck be compared, the palm must be given to those of the former animal for elegance and beauty, though they do not attain to quite the same length as in the larger species.

A full-grown male lechwe stands about 3 feet 4 or 5 inches in height at the withers, and is a very symmetrical-looking animal, although the body is thick-set and heavy. The general colour of the body is a rich dark red, with white belly and black markings down the front of both the fore and hind legs. The tail reaches to the level of the hocks, and is covered with close short hair to near the point, which is ornamented with a small black

tuft. The colour of the head and face and the upper part of the neck is a uniform pale yellow-brown. The ears too in the adult lechwe are pale brown all over, but in the younger animals of this species they are tipped with black, as in the adult pookoo. The male lechwe alone carries horns. These in the adult animal are singularly handsome. They do not sweep back immediately from the forehead as in the waterbuck, but at first bulge slightly forwards, then, diverging somewhat in the shape of a lyre, sweep backwards, and towards the points curve very strongly forwards, much more so than in the waterbuck. They are of a brownish colour, and beautifully annulated to within some 3 or 4 inches of the points. A good pair will measure 24 or 25 inches along the anterior curves, and a length of 28 inches has been recorded. The longest pair I ever shot myself measure 27 inches.

There were few more beautiful sights in the interior of South Africa five-and-twenty years ago than the great herds of lechwe antelopes, which might then be seen scattered in all directions about the flooded grass plains in the neighbourhood of Linyanti, on the Chobi River.

Herds of twenty old rams often consorted together, whilst countless numbers of ewes were to be seen scattered over the flooded grassy plains in all directions, the larger herds being often attended by many males of all ages, from the year-old bucks to the full-grown rams, whose long lyre-shaped horns always make them so conspicuous on the open ground they frequent. I once counted as they ran past me a herd of fifty-two lechwe rams. Some of these, however, were quite young, with horns only a few inches in length, but there was not a single ewe amongst them. The skin of the lechwe antelope is much prized by the natives of the countries where it is found, and after being dressed and rendered as soft as chamois leather it is used either singly as a kind of cloak, or several skins are sewn together to form a rug. Very large numbers of these animals are annually killed by the natives, who institute drives on a large scale in order to

compass their destruction. They are hunted in canoes, driven into deep water and speared, for although lechwe antelopes can swim well and very strongly, they cannot swim as fast as a canoe can be paddled. Where they have been much persecuted by the natives, lechwe are very wild and difficult to approach in the open ground in which they live, but where they have not been much interfered with they are very tame, and will allow one to walk up in full view of them to within 150 yards. When they decide to run, they invariably stretch out their nose and trot leisurely away, the males laying their horns back on each side of their neck ; but they soon break into a springing gallop, every now and then bounding high into the air. As they are nearly always in shallow water, the flight of a herd of lechwe is usually accompanied by a great deal of splashing, for even when the water nearly covers their bodies they do not swim, but progress by a succession of bounds from the bottom. When at last the depth forces them to swim, they show themselves very capable in this respect, as I have remarked above. The young are dropped towards the end of the dry season, in October and November.

The flesh I always thought very good, though the fat is hard and clogs on the teeth and the roof of the mouth whilst being eaten. I once saw a wounded lechwe that was lying down, spring forwards and drive the point of one of its very sharp horns right into the chest of a Kafir who was approaching in face of it, puncturing one of his lungs and inflicting what might have been a very bad wound. I was, however, close behind it, and when it sprang forwards the Kafir was stooping to seize it by the horn, and I believe that it injured him by accident and was really only trying to escape. At any rate I have never seen any other antelope of this species make any attempt to defend itself with its horns when wounded. The lechwe is very tenacious of life, and I have sometimes been astounded at the distance one of these animals has run after having been shot right through the heart.

F. C. SELOUS.

FIELD
MUSEUM



PLATE VIII

1. Common Reedbuck Head.
2. Bohor Head,
3. Nagor Head.
4. Mountain Reedbuck Head.
5. Vaal Rhebok^s Head.



THE REEDBUCKS

Genus CERVICAPRA

The presence of a bare or short-haired patch, apparently acting as a gland, below each ear, and the comparatively short and bushy tail, serve to distinguish at a glance the reedbucks from their near relatives the waterbucks and kobs. The horns of the males are regularly curved upwards, and sometimes also forwards. In the skull the premaxillæ are not extended upwards and backwards to join the nose-bones.

Four well-defined species of reedbuck may be recognised, viz. :—

- | | |
|--------------------|----------------------------------|
| 1. Common Reedbuck | (<i>Cervicapra arundinum</i>). |
| 2. Bohor | „ („ <i>bohor</i>). |
| 3. Nagor | „ („ <i>redunca</i>). |
| 4. Mountain | „ („ <i>fulvorufula</i>). |

The latter, which is distinguished by its small size, coupled with the lack of a forward hooking of the horns, may be divided into the typical southern race, an imperfectly known eastern race (*chanleri*), and a peculiar semi-albino race (*subalpina*) apparently confined to a single mountain in the Lydenburg district of the Transvaal.

THE COMMON REEDBUCK (*Cervicapra arundinum*)

Rietbok OF THE BOERS; *Mziki* OF THE ZULUS AND MATABELE; *Inhlango* OF THE SWAZIS AND MATONGA; *Cipohata* OF THE BECHUANAS; *Iklabu* OF THE BASUTO; *Impoyo* OF THE LOWER ZAMBESI NATIVES.

Colour of adult rams ashy brown above, with a strong tinge of yellow, darker on the back; head pale ochreous brown, under parts and inner side of limbs yellowish white; the fur on the under parts long and almost woolly. Muzzle naked; sub-orbital glands small; ears long and rather pointed, thickly haired inside. Tail short and bushy, brownish yellow

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above, pure white below. The horns, rising from the top of the skull behind the eyes, sweeping backwards, then sharply recurving forwards, are more or less widely divergent, deeply annulated for over half their length, and in some individuals slightly lyrate in form. Two distinct types of horns are found. In the one, when the animal is aged, the last rings grow out for $1\frac{1}{2}$ inch to 2 inches from the base (I have one fine specimen where the rings have grown out $2\frac{7}{8}$ inches), the space between these and the bases being hard and *longitudinally* corrugated. In the other type, when all the rings are formed and the animal is aged, a soft burr forms round the base, in some individuals attaining large proportions, but always remaining soft. It has been stated that this occurs only in immature specimens, but this is not the case; such horns are almost invariably short and stout. The average length of a good reed buck ram's horns is 13 inches. The largest I ever saw was an extraordinary single horn of 18 inches. The largest I have myself secured are $15\frac{1}{2}$ inches, basal circumference $6\frac{5}{8}$ inches, width between the tips $15\frac{1}{4}$ inches. The ewes are lighter coloured and hornless. An average full-grown ram stands 3 feet at the shoulder (I have shot one 3 feet $1\frac{1}{2}$ inches); extreme length, 6 feet. The ewes are about 2 feet 9 inches or 10 inches at the shoulder. I am of opinion that nowhere else in South Africa do reed buck ever attain the size of the old rams we used to shoot in the Eastern Transvaal some years ago. I have shot one which weighed 198 lbs., and another which I was unable to weigh I estimated at fully 200 lbs. The largest I ever saw weighed was shot by my friend, the late Mr. H. Glynn, and scaled 207 lbs. The reed buck's call is a sharp whistle, uttered by both sexes when alarmed, and frequently when playing about during the night.

At one time these antelope were numerous in Natal, Zululand, and Bechuanaland, but there are now few remaining in these countries. In the Transvaal and Swaziland they were exceedingly numerous in certain localities, but their numbers have now appreciably diminished, particularly

in districts that have become populated. They are still plentiful in Amatongaland, Gazaland, in Portuguese East Africa, along the Zambesi and Chobi Rivers, and in Ngamiland. Wherever I have met with reedbuck in the Mozambique province, in Southern Nyasaland, and Portuguese Zambesia it has always appeared to me a far lighter built animal, with a maximum weight of 110 lbs. to 120 lbs. Reedbuck are chiefly found in open rolling grass country on the mountain plateaux, where water is abundant, and in reedy valleys and thin open forest throughout the "low country," but never far from water. As their name implies, they are partial to dense reed-beds, but quite as frequently lie up in long grass cover on the high ridges, or in cool spots in thin forest; they invariably lie in dry places, even if near to water. They often lie very closely, and when disturbed rush out with great speed, seldom or never whistling, but going off at once with long easy bounds, presenting each flank alternately to the sportsman, and thus offering a none too easy shot. But if disturbed at a little distance, they whistle sharply and go off very deliberately, raising and lowering their "flags" in a characteristic manner, and usually standing at about 120 to 150 yards to look back at the cause of their alarm, then, whistling again, they once more bound off, frequently repeating these manœuvres if not fired at. The ewes are less inclined to stand than the rams, and can run with great speed and endurance. At night they often play around a camp for hours, whistling constantly. Though not strictly gregarious, little family parties of four or five are not infrequently seen, but they usually associate in pairs; I have seen ten or twelve feeding together on a patch of green sprouting grass. They are solely grass-feeders, and their flesh is second in flavour only to that of the bushbuck; many indeed consider it superior to that of all other small game. It has been said that these antelopes are shy and retiring, but in my experience I have found the very reverse to be the case, the surest places in which to look for them being the patches of cover in the vicinity of native kraals, especi-

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ally amongst the luxuriant weed-tangle which grows up in the old "gardens." They are very partial to the young maize-sprouts.

The young are born between December and March, earlier in the low country than on the mountain plateaux; their fur is woolly and rufous brown in colour.

A .360 Express rifle will account for any reedbuck if held straight, but a .450 Metford or the Lee-Metford .303 is better; hollow-fronted bullets should be used. In the "good old days" the favourite style of hunting the reedbuck was to ride over suitable country on horseback, taking one likely patch of scrub after another, or, if a party, to ride in line through them, then as the buck jumped up, to dismount and take the shot as he galloped off. This is very fine sport indeed, but I fear those days are over. Reedbuck can, however, be stalked in the evenings or early mornings without much difficulty, for they are not very wary antelopes. When pursued they very rarely take to boggy ground, but I have seen them go through such places. As a rule, however, they will almost run any risk in preference. But I have known reedbuck take to water both when wounded and unwounded, sinking themselves almost entirely below the surface, their noses and horns only remaining above. I have only once known a reedbuck to use its horns, and on that occasion it put them about 3 inches into the ribs of one of my dogs. Like all herbivorous animals, reedbuck are very tenacious of life, but they show a wound quicker than a bushbuck. Though the latter droops his tail and runs *fijnig*, as the Boers say, the reedbuck, though he may continue to show his flag, constantly shakes his ears, and looks "crimped-up" and generally demoralised. When badly hit, they often take to very dense cover.

F. VAUGHAN KIRBY.

BOHOR REEDBUCK (*Cervicapra bohor*)

GALLA NAME, *Boroufa* ; SWAHILI, *Porhé* ; AMHARIC, *Behor* OR *Bohor* ;
UGANDA, *Njasa* ; DINKA, *Kaö*.

This reedbuck, discovered by Rüppell, the Abyssinian explorer, in 1835, and by him named *Antilope redunca*, is in general appearance almost precisely identical with the common reedbuck. It is, however, a somewhat smaller species, and the young males have the horns considerably more hooked at the tips than is the case with the reedbuck. This distinction becomes less apparent with age, as the tips are worn away. The head and body are more generally fawn-coloured than in the common species. A good specimen will stand about 31 inches at the withers, and the best recorded horns measure $13\frac{3}{4}$ inches over the curve. These came from East Africa—the habitat of the bohor being in that country, including Gallaland and Abyssinia. The females are hornless.

The Vicomte Edmond de Poncins says of this reedbuck :—"These antelopes are very numerous in the Galla country near Mount Yokoilä ; they like open grassy plains, more or less dotted with the low mimosa bushes, and are found in small herds of from four to eight, sometimes even fifteen or twenty. They are not very wild, and may be easily stalked at less than 200 yards in the middle of the day. Old males frequently are found in the long grass quite alone, when, if disturbed, they gallop through the grass, jumping very high ; on the plains they go easy and fast without jumping. The flesh is not bad eating, and the Gallas are very keen about getting the skins. Weight about 80 lbs."

H. A. BRYDEN.

IN EAST AFRICA

SWAHILI NAME, *Tohe*; MASAI, *Daragway*; WANDEROBBO, *Erigutiandet*.

The reedbuck of East Africa has a very wide range, as it is found in such places as are suitable to its habits, from the Arusha-wa-chivi country south of Kilimanjaro, right away north to Lake Baringo and west to the Nile valley. In 1887 it was plentiful in the Kilimanjaro district, along the banks of the Wevi Wevi River, and there were also a few on the edge of a large swamp, east of the Rombo plains. Farther north there are a fair number in the marshy ground north of Lake Elmeteita, and on the eastern slopes of the Mau escarpment in the vicinity of the Ravine station, at an altitude of 7500 feet. Its real home, however, is the rolling grassy downs of the Mau plateau, where it is very abundant along the courses of the numerous streams which flow into the Nzoia River. On the banks of the various small streams which form the head waters of the Etaketok River, on the outskirts of the Nandi, and about two hours' walk from the Government station, it was very plentiful in 1898, and I have seen as many as a dozen or more in a short day's shooting. Here the country is very undulating, and the small streams running along the hollows the low-lying places overflow their banks and form marshes of several acres in extent, in which tall reeds, bulrushes and other water-loving plants flourish and afford both good feeding and cover for this buck. During the heat of the day this reedbuck lies up in the long grass and patches of scrub on the rolling hillsides overlooking the reed-beds in the low-lying swampy courses of the stream. It is never found far from water. In the early morning, up till about 8.30 A.M., it is found either feeding in these hollows or generally wandering about in search of a suitable dry place to lie down in until about 4 P.M., when it is once more on the move. The early morning and evening are therefore the best times

to look for it, as it is easier to see and can be fairly stalked. Throughout the rest of the day it is mere chance work coming across them at all. They lie, if anything, closer than an oribi or duiker, and if seen at all when they do move at close quarters, they go off at first with a rush, and in a crouching position with neck held straight out, and head so low as to prevent one from seeing whether it is a buck or doe, and offer a very difficult and uncertain shot with a rifle, as they almost invariably go straight away and double from one side to the other with such extraordinary speed that it is almost impossible to draw a bead on them. They are usually found in small herds of two or three together, and sometimes as many as five or six. On one occasion I saw eight. An old buck is frequently found quite by itself. During the rutting season, which is towards the end of June or beginning of July, the young bucks are driven from the herds by the older and stronger beasts, and are then found in small lots of three or four together. These bucks are never worth shooting. The reedbucks found on the Mau plateau are much finer and heavier than those found on the eastern slopes of the escarpment, and in the Masai valley. They also have much finer heads. The best can in no way be compared with the heads of reedbucks from South Africa (*C. arundinum*), as horns of 10 inches along the curve may be considered very good. Their note of alarm is a shrill whistle, which can be heard at long distances, but is rather difficult to locate.

If circumstances will allow one to take one's own choice, certainly by far the pleasanter time to look for these bucks is the cool of the evening, when they are on the move and feeding. The wind is then steady, the grass dry, and they are not likely to move far from the spot where they were last seen. Even if alarmed by the warning whistle of another one, which may be standing some distance off and not noticed by the stalker, they will endeavour to escape observation by crouching down in the grass where they stand, rather than seek safety by flight.

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This is a very common trait, and one which often leads to the belief that they have gone clean away. If, therefore, the stalker, on arriving at the spot he intends to take his shot from, finds the buck is nowhere to be seen, let him keep out of sight and wait patiently until the warning whistle ceases, and he will soon have the satisfaction of seeing his buck stand up and go on feeding again. On one occasion I remember finding a single buck standing on an extensive bit of bare sandy ground with absolutely no covert but a single patch of withered grass about a foot high and six feet square. On one side of this bare ground there was a deep and dry watercourse, but, unfortunately, just as I climbed down into it I heard the warning whistle of another bohor in the distance. However, as the buck for some little time appeared to take no notice of it, I hurried along the bed of the stream until I got to the exact place I intended to take my shot from, but on looking over the edge of the bank there was no buck in sight. It had vanished. I scrambled off the bank, shouldered my rifle, and started off to look for something else. On my way I actually passed within a few yards of the small patch of grass, when up jumped the buck, but I was so taken by surprise that a hurried snap shot missed it clean.

F. J. JACKSON.

THE NAGOR REEDBUCK (*Cervicapra redunca*)

Wonto OF THE NATIVES OF THE GAMBIA

This is the smallest of all the reedbucks, and inferior in size to *C. bohor*. Height at the shoulder about 28 inches. It is of a nearly uniform reddish brown in colour, rather darker in the middle line of the back, but is without darker markings on the limbs. Head and body are alike in coloration. The insides of the ears and the ocular region are white, the face being rather more rufous. The belly and insides of the extremities are whitish. There is a noticeable, roughly circular, naked space below the

base of the ear, white in colour. The tail is short, bushy, and fawn-coloured above, white beneath. A young animal that I reared on the Island of St. Mary, at Bathurst, was caught in the upper reaches of the Gambia River by a native. After four months on milk from a feeding-bottle, I weaned it to dried ground-nut grass (*Arachis hypogæa*).

For the first six months the tear-glands were a marked feature on its face, and it was quite white on the chest and under parts. As it grew older, however, the tear-glands were hidden; it then became darker, and its coat grew twice as long as before, the white of the under parts deepening into a light mouse-brown. The horns were cut at six months old, and altered their direction several times before the animal entered the gardens of the Zoological Society of London in June 1890. This antelope is still alive and in perfect health. The horns are thick in proportion to the size of the animal, 5 inches in circumference at the base, and about 9 inches long. The terminal portion is strongly inclined forwards.

The Nagor inhabits West Africa north of the forest region. The type specimen vaguely described by Buffon is said to have been got from the arid and pestilential rock known as Goree, doubtless brought thither from some of the reed-beds of the mainland. Whitfield brought home this animal to the Knowsley Menagerie, when collecting for the late Lord Derby in the Gambia. Paris has two mounted males from Senegal, and there is another at Frankfort-on-the-Main. The specimen I reared became extremely tame, would follow me about like a dog, and eat out of my hand; it was very fond of the flat, curled seed-pods of a mimosa tree, with yellow tasselled blooms, which grew in my compound.

PERCY RENDALL.

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MOUNTAIN REEDBUCK (*Cervicapra fulvorufula typica*)

AND THE LYDENBURG RACE („ „ „ *subalpina*)

Rooi-rhebok (RED ROEBUCK) OF THE BOERS AND COLONISTS GENERALLY;
Inhlang'omatshe (REEDBUCK OF THE STONES) OF THE ZULUS AND
 SWAZIS.

Nine out of every ten Colonial sportsmen call this antelope a reedbuck, believing it to be so, merely on account of its mountain-loving habits; on the other hand, it must be admitted that the term reedbuck seems singularly inapplicable. The colour of this species is usually warm red-brown, buff on cheeks and throat, white on the under parts, inner sides of limbs and beneath the tail; but adult rams very frequently acquire the ashy-brown tint of *C. arundinum*. The muzzle is naked; sub-orbital gland very small; ears well covered with hair internally, thinly externally; tail bushy and short; lateral hoofs present, but small; the fur is long and somewhat woolly. Horns, average length 6 inches, only present in the male; they are very similar in shape to those of the reedbuck, rising from the skull over the eyes, inclining backwards, diverging, and recurving sharply forward; they are ringed for about half their length. The shoulder-height of an adult male is 30 inches, of the ewes 26 inches. The mountain reedbuck utters a shrill whistle when alarmed, which is not distinguishable from that of the reedbuck. In 1896 I shot some specimens of a mountain reedbuck, near Lydenburg in the Transvaal, which are of great scientific interest; the type is now in the National Museum, South Kensington, and, pending further details concerning it, has been styled *C. fulvorufula subalpina*. It differs from *typica* in having all four legs white from the knees down, white hoofs, white tail, both above and below, a white patch on the frontals, and a more or less clearly defined white stripe along the dorsal line. I secured adult and young of

both sexes. They also present an apparently genuine difference in habits as well as colour from the ordinary form.¹

These antelope are still fairly numerous in the south-eastern districts of the Cape Colony, in parts of Bechuanaland, Swaziland, and the Transvaal. In the latter State, on the Drakensberg, particularly around the Mauchberg, and the Blyde and Oliphant River Poorts, they are very numerous. I have nowhere met with them north of the Limpopo River. They are partial to rugged, hilly country, though shunning bleak, barren mountain summits. Their favourite spots are amongst the scattered "sugar-bushes" and dry grass on the sunny slopes and in shallow gullies, and in such places they are far more approachable than the rhebuck on the summits. At one time they were numerous amongst the foothills, and on the lower terraces, but such places invariably became inhabited, and those antelope that were not destroyed sought safety at higher elevations. Years ago I have seen them amongst the rocky *kopjes* on the flats between the Sabi and Krokodile Rivers, and my friend Mr. H. T. Glynn shot one there. They associate either in pairs or small herds of five or six to a dozen in number; solitary old rams are often met with. They drink regularly once in the day, and are entirely grass-feeders; their flesh, though more palatable than that of the rhebuck, is decidedly inferior to that of the reedbuck. They much resemble the latter antelope when running, the spread tail and peculiar rocking-horse action when not laying themselves out to run hard being marked characteristics of both.

Mountain reedbuck shooting is really fine sport—usually it will be obtained in the course of a day's mixed shooting on the hills, when one is also prepared for Vaal rhebuck, oribi, and klipspringer. But it is far more satisfactory to deal with them separately; and, in order to obtain the greatest success, early rising and some knowledge of their habits are indispensable. Be on the ground by sunrise, on foot from choice; take

¹ *Proceedings Zoological Society*, Nov. 30th, 1897.

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up a position overlooking a valley or a series of mountain spurs, and thoroughly examine the ground with your glasses ; at this time your game will be moving about, and will show up conspicuously in the early sunlight. If a troop is discovered, a careful stalk, followed by a steady shot, will make the ram yours—won in true sportsmanlike style ; but if you fail to pick any up after a careful search, clamber halfway down the slope, then follow it round under the krantzes, up wind, keeping just above the line of scattered bush, and throwing stones occasionally into the gullies. Up till 8 A.M. you may expect to find your game standing about, though they will often lie down at once on seeing you ; for this reason the ground ahead, especially the scattered bush-patches, must always be critically examined, paying special attention to any small reddish yellow objects which may be in sight. When two guns are out, one should keep well up on, or just under, the krantzes, the other in line, well down the slope. Mountain reedbuck invariably run either round or obliquely down a hill, seldom climbing as the rhebuck does. When lying down, if they think themselves unseen, they will often permit one to approach very near. A singular instance of this occurred a few years ago when I was shooting on the Drakensberg. Returning on foot to camp in the evening, I saw a fine ram crouch down behind a bush, having made me out. In order to obtain a shot when he jumped up, I had to manœuvre to the left for about 50 yards over ground which was quite open save for here and there a few scattered “sugar-bushes” ; but I gained my point about 140 yards from the ram, which I now saw lay in a little hollow, squeezing himself into a very small compass. I was in the act of raising my glasses when my eyes fell on the form of a ewe lying flat on the ground, certainly not more than fifteen paces from me. She knew instinctively, however, that she was now discovered, and instantly jumped up, followed by the ram, which fell a moment later to a Metford bullet. To have stalked that ewe intentionally to such close quarters would have been utterly impossible, but

in this case she knew she had not been seen, so lay low. In the middle of the day it is best to hunt these antelopes from the saddle, as it will be found necessary to cover much greater distances. If the sides of the kloofs are too steep for riding, the horse can be led along the krantz on top, and stones thrown down into the kloof; a fair chance will then be obtained as the game runs out on the other side. These antelope can almost invariably be brought to a stand, after they have started to run, by a sharp whistle.

I have found a .461 Metford, 90/360, a very suitable weapon for this sport, but any .450 rifle sighted to 300 yards is efficient, as it is seldom necessary to fire at a longer range. The mountain reedbuck is far less tenacious of life than the Vaal rhebok, though a wounded one will sometimes get into an ugly spot amongst the rocky gullies, and require a dog to him up.

F. VAUGHAN KIRBY.

CHANLER'S, OR EAST AFRICAN, MOUNTAIN REEDBUCK

(*Cervicapra fulvorufula chanleri*)

SWAHILI NAME, *Tohe*; WANDEROBBO NAME, *Kipsituet*.

This reedbuck was first obtained and brought home by Mr. Astor Chanler, who killed it during his expedition to the east of Mount Kenia. The Swahilis do not distinguish any difference between it and the bohor reedbuck, and call both *Tohe*. It has a fairly wide range, and is found in the Kiyu hills south of Machakos on the eastern side of Mount Kenia and west to the Ravine Station on the eastern slope of Mau. It is, however, a very local beast, and it is only found in hilly country, where it frequents the roughest and most broken rocky slopes. Amongst other places where it may be found are the Kiyu and Mwani hills, Donyo Lukenya—in former days so celebrated for lions—and the eastern rocky slopes of the Kedong valley. It is a smaller and more slender beast than the reedbuck (*C. bohor*), and at a glance may readily be distinguished from it by its stony-gray colour. The

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horns are also smaller and thinner, a good pair being from 6 inches to 7 inches in length. It is usually found in small lots of two or three. In the Kiyu hills I have seen five together. Its note of alarm is a shrill whistle, but not so loud as the reedbuck's. The early morning and late evening about 5 o'clock are the best times to look for them, as they are then feeding and the chances of seeing them are better, but they are by no means easy to make out on account of their colour assimilating so closely with the gray rock and stones amongst which they are found. During the rest of the day they lie



FIG. 30.—Male specimen of Chanler's Reedbuck (*Cervicapra fulvorufula chanleri*). Photographed by Lord Delamere. Shot on grassy hills in waterless plateau, between Boran Gulla and Rendile countries to the east of Lake Rudolph.

up under the shade of some big boulder or bush, and are then practically invisible. If sought for at other times the stalker should keep along the top, or as near the top as possible, of the rough rocky spurs. This buck, like most hill game, appears to be more intent on watching for the appearance of danger from below rather than from above.

They lie very close, and as they may so easily escape observation I have found it a good plan to every now and again throw a fair-sized stone down the hillside. This will move them and make them show themselves, but does not appear to scare them, as no doubt they are accustomed to the noise

of falling stones. The measurements and weights of a buck and doe are as follows :—Buck, total length, 4 feet $7\frac{1}{2}$ inches ; height at shoulder, 2 feet $9\frac{1}{4}$ inches ; tail, $6\frac{3}{4}$ inches ; weight, 73 lbs. Doe, total length, 4 feet $3\frac{3}{4}$ inches ; height at shoulder, 2 feet $5\frac{1}{2}$ inches ; tail, 6 inches ; weight, 63 lbs.

F. J. JACKSON.

THE VAAL RHEBUCK

Genus PELEA

A very different animal from either of the preceding groups of the *Cervicaprinæ* is the rhebuck, or Vaal rhebuck (*P. capreolus*), which is the sole member of its genus at present known. Its most distinctive features are its comparatively small size, the short, upright, and generally straight horns of the male, the somewhat woolly hair, and the short, bushy tail. The naked portion of the muzzle is relatively large, and there are no face-glands or bare patches below the ears. The skull is very similar to that of the reedbucks, showing the deep pits in the forehead found in all the members of the sub-family.

THE VAAL RHEBUCK (*Pelea capreolus*)

Vaal Rhebok (GRAY ROEBUCK) OF THE BOERS ; *Peeli* OF BECHUANAS ;
Iliza OF THE ZULUS AND SWAZIS ; *Pshiatla* OF THE BASUTO.

This antelope, which has certain affinities with the Cervicaprine group, is characterised by its soft, woolly, gray fur, slender neck and legs, and straight, sharp horns, widely separated and non-divergent, rising vertically from the skull above the eyes, with a slight forward bend, and ringed for about half their length. Muzzle naked ; sub-orbital gland absent ; ears narrow, long and pointed ; fur ashy brown in colour, pale on the throat, and white on the under parts ; tail short, broad, and thickly haired. An

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adult ram stands 2 feet 7 inches at the shoulder ; a ewe 2 feet 4 inches. The horns (absent in the female) average 6 inches in length ; a pair of 11 inches is recorded. In the rutting season the rams utter a deep guttural note during the night, but their ordinary call of alarm is a sharp coughing snort.

Although a mountain-loving antelope, its habitat is by no means so strictly confined to the range-summits as has been stated. Only a few years since, they were common on the middle and lower terraces of the Drakensberg Mountains, East Transvaal. The tropic of Capricorn is about their northern limit. Up till quite recently they existed in great numbers in the Eastern Transvaal, and are still numerous ; their range also extends from the middle and south-eastern districts of the Cape Colony, through the Free State, Bechuanaland, Natal, Zululand, and parts of Matabeleland. On the lower terraces they lie up during the day amongst out-cropping rocks or patches of bracken, while on the mountains they lie among the stones or in little gullies on the sheltered slopes, or on open stony tablelands. At night they descend to lower ground to drink, and to feed about in the sheltered hollows, making their way back to higher ground at sunrise. They are grass-feeders, and their flesh is poor. During very dry weather they are attacked by bot-fly larvæ, which burrow under the skin of the back, and raise unsightly excrescences, which are anything but appetite-inducing. Rhebuck associate in pairs, or in herds of six or eight to fifteen or twenty in number ; occasionally old rams lead a solitary life. Their activity is boundless, and their energy untiring, and, though presenting a somewhat stilty appearance when at rest, they quickly undeceive the observer when they start to run. Their brown-gray fawns are born between mid-November and Christmas, and are always skilfully hidden by their dams in patches of grass amongst the boulders. When they are very small the ewes feed near at hand, and will permit an intruder to approach much nearer than would otherwise be the case.

No other antelope in Africa affords truer sport than the rhebuck, for none is so shy and difficult of approach ; it is sport for princes, and only by energy, perseverance, and the possession of good health will success be achieved. I will dismiss the subject of driving them by saying that it is altogether unsportsmanlike, and will advise the sportsman, if alone, to wake at dawn, have his early-morning coffee (that *sine qua non* of African sportsmen) and a biscuit, then to take the field with rifle (sighted to 400 yards) and field-glasses, and make his way towards the rhebuck's feeding-grounds. The sun should be just about rising when he gains some point whence he can sweep the valleys and broken ground below him, while the cool, keen air blows healthily into his face, and every pulse within him bounds exhilaratingly. If the rolling mist-clouds are still lingering in the valleys and sweeping past him in fleecy wreaths, there is more need than ever of caution, but at last a careful search will probably reveal a little herd, with a good ram amongst them, making their way steadily upwards. The sportsman—taking the direction of the wind and the lie of the ground into consideration—must quickly decide whether he will endeavour to intercept them in their ascent, or, should they show signs of delaying where they are, whether it is possible to get down to lower ground and stalk them. In any case, a shot at 120 yards or less may be obtained, but far more often it will be between 200 and 300 yards ; and the satisfaction he will then feel, as the loud “clop” of the bullet reaches his ears, and the white under fur of the stricken ram shows up amongst the gray rocks or on the green sward, will be tenfold greater. To attempt to approach rhebuck from below, when they are occupying a mountain summit, is almost useless. In most cases they will know instinctively that they have been discovered, and directly the sportsman disappears from view, in his endeavour to work round them, they make off ; and while the former, half-an-hour later, is congratulating himself on the near completion of a successful stalk, he will suddenly hear a far-off “Tshu ! Tshu !” and will see his would-be victims

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on a ridge, 500 or 600 yards away, stamping their feet, and uttering again their mocking "Tshu!" The best sport can be obtained if there are two guns, then, whether on foot or in the saddle, they can separate, and keep the rhebuck moving about from one to the other; but be it remembered that when stretching themselves out to reach a point from which they fear being cut off, they take some straight shooting; and a rhebuck streaking down a rocky hill-side will be missed ninety-nine times out of a hundred. It is most unsportsmanlike to blaze away at running rhebuck at 400 and 500 yards, on the chance that one bullet out of a dozen fired may find its mark. A long-range (400 yards) rifle of .400 or .450 bore is a suitable weapon to use, but a Lee-Netford should be perfect for this kind of work. Rhebuck are tough animals, and, even if badly hit, will give a lot of trouble before they are secured.

F. VAUGHAN KIRBY.

THE IMPALA OR PALLAS

Genus ÆPYCEROS

This genus is the first representative of the typical sub-family of the antelopes—the *Antilopinae*; a group differing from most of those already considered in its much wider geographical distribution. Several of the genera, for instance, like the typical *Antelope*, are exclusively Asiatic, while others, like *Gazella*, are common to Asia and Africa, and others, again, such as the present, are restricted to Africa south of the Sahara. As distinctive characteristics of the sub-family, may be mentioned the medium or small size of the species, the hairy muzzle, and the generally short tail. Face-glands may be present or absent; the upper cheek-teeth are tall and narrow, like those of the sheep; another sheep-like character being the presence of only two teats in the females of all the species save the Asiatic saiga. As a general rule, the skull has gland-pits below the eyes, unossified

spaces in the neighbourhood of the nose-bones, and deep pits on the forehead like those of the *Cervicaprinae*. With the exception of the springbuck and the majority of the true gazelles, horns are developed only in the males; in most of the African members of the group they approximate more or less to a lyrate form, and are always heavily ridged for the greater part of their length.

The impalas are some of the largest members of the group, easily distinguished from all the rest by the absence of lateral hoofs and the presence of tufts of hair above the main hoofs. The head is devoid of face-glands, the tail is of moderate length, and the skull lacks pits both above and below the eye-sockets, while the unossified vacuities in the neighbourhood of the nose-bones are small. The horns of the male are long, and curved into a broadly lyrate form, with the ridges confined to the front surface, and the whole somewhat compressed. Two species, chiefly distinguished by coloration, may be recognised. These are

1. The Common Impala (*Æpyceros melampus*).
2. Angolan Impala (*Æpyceros petersi*).

THE COMMON IMPALA OR PALLA (*Æpyceros melampus*)

Rooi-bok OF THE BOERS; *Impala* OF THE ZULUS, MATABELE, SWAZIS, AND MATONGA; *Pala* OR *Pallah* OF THE BASUTOS AND BECHUANAS; *Nwala* OF THE LOWER ZAMBESI NATIVES; *Ec-pala* OF THE MAKALAKAS; *Kug-ar* OF MASARWA BUSHMEN.

This antelope is one of the most beautiful ornamentations of the bush country in which it is found, being graceful in outline and action, and of brilliant coloration—bright chestnut-red on the back and upper part of the sides, shading off into pale red-fawn; the belly and insides of the limbs are snow-white. The head and neck are reddish-yellow; muzzle covered with hair; no sub-orbital gland; ears black-tipped, pointed, and delicate;

tail short, with a black stripe down the middle on the upper side, tip and lower part white; a black crescentic mark round the buttocks; feet without lateral hoofs; a tuft of black hair on each hind-leg over the fetlock covers a gland containing a fatty secretion. The horns of the male are lyrate, semi-spiral, more or less widely divergent, and deeply annulated. When they are about 12 inches in length (in young rams) the tips converge, forming an oval, and I have seen many that actually cross. In South-East Africa 17 inches in a straight line from tip to base is a fair average length. The largest pair I have shot measured, as do those of Mr. Selous' recorded pair, 20 inches in a straight line, tip to base, $25\frac{1}{4}$ inches over the front curve, and 14 inches between tips. These measurements are greatly exceeded by those of East African impala, but seldom by South African heads.¹ The vertical standing height of a full-grown ram is 3 feet to 3 feet 2 inches; of a ewe 2 feet 8 inches; the latter are hornless. Up till quite recently it was supposed that the impala of British Central Africa was specifically distinct from that of the south, solely, so far as I can judge, because the so-called type specimen happened to be a somewhat smaller animal, with smaller head and shorter horns; but Mr. Sclater informs me that the idea of separating them is abandoned. This is as it should be. I have shot many in both places, and have secured many specimens of the southern impala, which are quite as small as, or even smaller than, any I obtained from British Central Africa.

Not many years ago impala ranged throughout all the wooded districts of Bechuanaland and the Transvaal, and thence north to the Zambesi; but in the former place very few remain (there are said to be a few within 30 miles of Khama's town, Palachwe), and they are getting scarce even in the Northern and Eastern Transvaal, where I remember them in troops of one to two hundred. Even in the Matamiri bush, which the natives often speak

¹ The longest pair yet known, brought by Lord Delamere from East Africa, measure 30 inches over the curve, 24 inches in a straight line, $17\frac{1}{2}$ inches between the tips, and $6\frac{1}{4}$ inches in circumference.—Ed.

of as being "red" with them, and where I have seen very many thousands, they are much reduced in number. This cannot be wondered at, considering the brutal and disgraceful manner in which they were slaughtered during the Selati Railway construction. In parts of Portuguese East Africa, and along the Upper Zambesi and Eastern Mashonaland they are still plentiful; but throughout the Mozambique province I have not met with them.

Impala are strictly gregarious, ranging in troops of from ten or twelve to larger ones whose numbers could scarcely be computed. The number of females is greatly in excess of that of the males. Large troops of the former, with perhaps a few half-grown males, but not a single big ram, are frequently seen; and I have met with troops consisting of twenty or thirty males alone. They are partial to open woodland and low, sandy bush country, and are seldom seen more than two miles from water. In the Eastern Transvaal they are invariably found amongst "impala bush," with which immense areas of the "low country" are covered. They are grass-feeders, but I have at times seen them eating the leaves of certain bushes. They drink regularly three times a day—morning, mid-day, and evening—and even oftener in the very hot weather. Their leaping powers are extraordinary. I have been told, on credible authority, that an impala ram was seen to clear a distance of 35 feet. I only once obtained a record of the distance covered. I measured it carefully, 70 feet in three leaps of 26, 16, and 28 feet. It is one of the prettiest sights imaginable to see a troop *streaking* in a red line through the bush, and bounding over the scrub, six, eight, or ten at a time leaping high over the backs of the others. I am not certain about their staying power, but for a short distance I think they are the fleetest antelopes in South Africa. Impala feed and stand about more or less throughout the day, but solitary males lie down.

Large numbers are destroyed annually by lions and leopards, the nature of the country they inhabit favouring the stealthy advance of these creatures. When once a troop starts to run in a particular direction, scarcely anything

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will turn them, and if, after alarming them, the sportsman runs through the bush to cut them off, they will pass within a few feet of him, merely "putting on steam," bending lower to their work, and performing prodigies of leaping. In October the ewes become very fat, and are most delicious eating, but in very dry seasons they are much troubled with bot-fly larvæ. The young are born in November and December. During the rutting season the rams constantly utter loud, hoarse guttural sounds, audible at a great distance, day and night, and at such times are particularly easy to stalk. They often fight fiercely amongst themselves. They utter a short bark sometimes when alarmed, but their usual warning is a loud snort, particularly when they sight a lion or leopard.

They are easy animals to stalk, but are unquestionably more tenacious of life than any of the smaller, if not the larger antelopes, and, unless hit in a vital spot, will certainly be lost in the thick bush which they frequent. I witnessed a striking incident when hunting one morning in the Matamiri. I was endeavouring to stalk a big impala ram—one of a troop which stood on the far side of an open glade—and as I approached them, another herd ran out from my left into the glade and ranged themselves on the side of it nearest to me. All were evidently intent upon something else, and permitted me to approach within 20 yards. I put up my rifle, and was trying to get a sight on the big ram, when a chorus of angry snorts and barks broke from them, and two impala ewes bounded across the arena between the two herds, followed closely by a beautiful leopard. The latter pulled up in the middle of the glade, his painted flanks heaving heavily, and his tail twitching angrily. The impala never moved, but with outstretched necks, and stamping feet, made a perfect din with their loud snorts, till the report of my rifle, and the hoarse growling of the leopard as he rolled over in his death-throes, sent them flying on winged feet in all directions.

An ordinary .450 bore rifle, firing modified express bullets with small

hollow, is a thoroughly efficient weapon for shooting these antelope. Their skins are very tough but soft, and make handsome mats and karosses.

F. VAUGHAN KIRBY.

THE IMPALA OR PALLA

IN BRITISH EAST AFRICA

NDOROBO NAME, *Darageti*; SWAHILI NAME, *Nrwala*

The impala or palla is a medium-sized buck of a dark red colour, with white belly. A large ram may probably weigh, entire, about 160 lbs. I think they run larger in South Africa, although the heads there are not so fine.

The species has a wide range in East Central Africa, but its distribution is very patchy and it occurs only here and there in localities where the conditions are favourable to its habits. Those conditions commonly are—pretty dense bush or scrub, to retreat to when disturbed, or to lie up in during the hottest part of the day; “park-like” tracts or open glades to feed in; and water within reach. It is nowhere found in anything approaching to the numbers that were formerly to be seen in some parts of South-East Africa, where immense herds were common, and where, as the natives used graphically to express it, the whole bush would sometimes become red with them; nor, so far as I know, does it anywhere occur continuously over any wide extent of country. But in small parties—herds of 10, 20, 30, 40, or perhaps 50, but rarely, I think, more, though Jackson records having seen as many as 150 together—it is scattered here and there over the country from within about 50 miles of the coast (as on the edge of the Taru desert), through Masailand up to the basin of Lake Victoria Nyanza on the one hand, and on the other from the banks of the Sabaki and Tana to the neighbourhood of the Lorogi and Matthews ranges. I did not, however, meet

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with it anywhere on Lake Rudolph. I suppose the country in these equatorial regions is not so congenial to its habits as the parts of South-Eastern Africa I have in my mind, where it used to be so wonderfully plentiful; it certainly has not been killed off here, as it may probably have been, for all I know, by this time there. Its haunts in Central Africa are, for the most part, in almost untrodden wilds, where there is no one to interfere with it; and therefore it is not likely that it was ever more plentiful than it is at the present day. It is pretty common in the neighbourhood of the Gwaso Nyiro River, north of Mount Kenia, and it was there that I obtained my finest specimen, the dimensions of which are—length of horns (straight) = 23 inches; ditto (on front curve) = 28 inches; tip to tip = $22\frac{3}{4}$ inches; circumference = $5\frac{3}{8}$ inches. The heads in that district are commonly very fine, and I have no doubt a better than the above might easily be obtained.¹ The impalas of this part of Africa have generally much wider horns than those of the south; and this is, so far as I am aware, the only respect in which they differ from their southern brothers. The does are hornless.

Their colour often matches so well with some tree-stems or the red ant-heaps common in some parts that it is easy for an unpractised eye to overlook these antelopes when standing motionless in the bush. But I have often wondered whether this "protective colouring" in such animals is really of any practical value to them; for no experienced hunter is deceived by it. As a matter of fact I have noticed that, although one may at first sight often mistake a stump for a buck, the converse error is rarely if ever fallen into. Seen end-on from behind, a herd of them, when huddled together, is given such a different appearance by the black stripes down the thighs that at the first glance one may suppose he has come across some new striped antelope.

¹ Since this article was written I understand that several heads bearing these measurements have been brought home.

The does sometimes get very fat, and are then excellent venison. When in high condition the coat is wonderfully sleek and glossy, and a young doe is then less red in colour, being more of a brownish tint, almost approaching to mouse-colour.

The rams fight desperately, and the vanquished form separate herds by themselves. In the rutting season the rams make a curious deep-toned sound, which can be best described as a kind of continuous grunting. To one unfamiliar with the habits of this buck the noise might be more readily believed to be produced by pigs, when heard in thick bush where the animals themselves are hidden.

As already stated, this antelope is not independent of water and is never found very far away from it; but the frequency with which it drinks depends very much upon the state of the pasturage. When that is very dry it resorts to the water at least once in the twenty-four hours, but when feeding on fresh green grass it does not need to drink so often, and at such times wanders farther away from its drinking-places. It feeds principally on grass, but eats leaves as well.

Impalas are most graceful and agile creatures, and display marvellous activity when alarmed, flying through the scrub and bounding high over bushes, one after another, as the herd follows its leader in his headlong course; or, if surprised at close quarters in thick cover, the bush becomes suddenly alive with them, several often being in the air simultaneously in their first bewildered affright.

As a rule they are not very hard to stalk, but it is sometimes difficult to get a shot at them owing to the thick bush they often frequent. When, however, the hunter has once succeeded in approaching unobserved, he may often, if he wish it, kill two or three (as pointed out by Mr. Jackson in the Badminton Library), one after the other, and occasionally two may even be brought down with one bullet.

In districts where there are wild dogs (in Equatorial Africa I have

never seen these destructive brutes very far in the interior) the impala is its favourite prey. One luckless buck is singled out, and, being separated from the herd, is hunted by its relentless pursuers, one dog making the running while the pack follows, until at last the leader runs into the exhausted quarry and bowls it over, when it is torn to pieces and swallowed almost literally alive. Leopards, too, constantly take toll of these antelopes, and the lion is not above appeasing his hunger with one when no bigger game is to be had. The leopard sometimes adopts a ruse to enable him to secure one. He will imitate the cry of a buck that has been caught, exciting the curiosity of the impalas, which come towards the sound, evincing the keenest interest and looking with strained attention in the direction whence it proceeds, their necks stretched and ears cocked, the most inquisitive even standing erect on their hind-legs, exposing their white bellies conspicuously in their anxiety to see what is the matter, and so drawing gradually nearer until the leopard gets his opportunity. I have been told by an old hunter that during this performance the leopard lies on his back with his paws in the air; but this I cannot vouch for myself. I have, however, seen the curious behaviour of the impalas just described and heard the cries of the leopard, whose identity I established by examining the spoor in the sandy stream-bed where he was hidden from my view by rushes, into which he afterwards retreated when I incautiously alarmed the bucks, imagining one had been already caught.

In East Africa these beautiful antelopes do not seem to mix so much with other species as they are in the habit of doing in the south; but they may sometimes be found in company with Burchell's zebra, or, more rarely, giraffe. It is rather a curious circumstance that, whereas in South Africa they constantly associate with the blue wildebeest, in this part of the continent the habitats of these two creatures are, so far as my observation goes, altogether distinct.



PLATE IX

- | | |
|----------------------------------|----------------------------|
| 1. Springbuck Head. | 6. Speke's Gazelle Head. |
| 2. Dorcas Gazelle Head (male). | 7. Pelzeln's Gazelle Head. |
| 3. Dorcas Gazelle Head (female). | 8. Loder's Gazelle Head. |
| 4. Edmi Gazelle Head (female). | 9. Heuglin's Gazelle Head. |
| 5. Edmi Gazelle Head (male). | 10. Rufous Gazelle Head. |

I am indebted to Mr. F. J. Jackson for the following notes of weights and dimensions of male impala :—Weight, 134 lbs. to 162 lbs. ; height, 2 feet 10 $\frac{3}{4}$ inches to 3 feet 2 $\frac{1}{2}$ inches ; length, 5 feet 5 $\frac{1}{4}$ inches to 6 feet $\frac{1}{2}$ inch. The female is somewhat smaller.

A. H. NEUMANN.

THE ANGOLAN IMPALA (*Epyceros petersi*)

This animal is exactly similar to the ordinary impala or palla of other parts of Africa, with the exception that the front of the face, from the level of the eyes to the nostrils, is marked, exactly in the centre, with a purplish-black streak. Two other dark streaks pass over the eyes, one on either side of the face. The best recorded pair of horns, obtained by Captain F. Cookson in the Kaoko-Veld, near the Cunene River, German South-West Africa, measure 23 $\frac{1}{4}$ inches over the curve, 18 $\frac{3}{4}$ inches straight, and 12 $\frac{1}{4}$ inches from tip to tip. At present identified in the Kaoko-Veld and the province of Mossamedes, Angola.

H. A. BRYDEN.

THE SPRINGBUCK

Genus ANTIDORCAS

Although commonly classed with the true gazelles, the springbuck (*A. euchore*) differs from all the latter by the presence of a deep fold running down the middle of the back, lined with long white hairs, and capable of being partially turned inside out. It is further distinguished by having five, in place of six, cheek-teeth on each side of the lower jaw. These peculiarities seem to warrant the separation of this antelope to form a genus apart. The horns of the bucks are of medium length and lyrate form, twisted inwards with a graceful sinuous flexure, and their tips inclining inwards or backwards ; those of the does smaller.

THE SPRINGBUCK (*Antidorcas euchores*)

Springbok OF THE CAPE DUTCH ; *Tsèpè* OF THE BECHUANAS ; *Eetsaypèe*
OF THE MAKALAKAS

The springbuck is still one of the most abundant, as it is the best known, of all animals in South Africa ; and although its numbers have vastly diminished since those days when it roamed in countless myriads from the foot of the great Zwartberg range in the south of Cape Colony to the Orange River and far beyond, it is still fairly plentiful in many parts of the country. In height a good specimen of the springbuck will measure about 32 inches ; in length about 4 feet 8 or 10 inches ; while the weight of a fair ram in good condition is about 70 lbs. The general body-colouring is bright cinnamon-fawn, the face, throat, stomach, and inner parts of the limbs being spotless white. A small patch of the fawn colour is to be observed on the upper part of the forehead between the horns, and the white face is characteristically marked by a rich streak of chestnut on either side, running from the eye nearly down to the corner of the mouth. A broad dark band of chestnut runs also horizontally along the side and flank of the animal, and is noticeable at a long distance. The horns are black, lyrate in shape, and strongly annulated for three parts of their length upwards. Those of the ewes are less robust, and are often less strongly ringed. The longest recorded pair of springbuck horns at present known measures over the curve 19 inches, but a good average pair seldom attains more than 13 inches. The eyes are large, dark, and very beautiful. The legs are long, slender, and beautifully clean. One of the most curious features about this antelope is the singular blaze of white hair which normally lies folded flat upon the croup, and is nearly covered by the cinnamon body-colouring upon the back of the springbuck. When the animal is excited, alarmed, or at play, it has the faculty of erecting this strange patch of white

hair, which stands up upon the back and croup in a fan-like blaze, and is conspicuous at a long distance. The spectacle of a number of these fleet and marvellously active antelopes arching their backs, displaying this snow-white blaze of long hair erect upon their croups, and springing repeatedly, as they will do, straight up into the air to a height of 8 or 10 feet, is a singular and most fascinating one. The extraordinary leaps from which the springbuck has acquired its name (bestowed upon it long since by the Dutch colonists) are made with the slender legs held stiff and rigid. The animal



FIG. 31.—Springbuck (*Antidorcas capensis*) in Mr. C. D. Rudd's park at Fernwood, Newlands, near Cape Town.

bounds up into the air as if driven from a catapult, apparently with but the slightest exertion. The four feet strike the ground again simultaneously, and again the springbuck flies straight up into the air, as if impelled by magic. Half-a-dozen leaps or more may be made, and then away the animal scours across the plain. The spectacle of a number of these graceful creatures thus displaying themselves, as they often do simultaneously, is certainly one of the most beautiful and characteristic to be witnessed in all South Africa. The freakish leaping often indulged in by these animals is called by the Boers *pronken*—which corresponds to our word “pranks.”

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In the old days the Hottentots of South-West Africa looked, naturally enough, upon the springbuck as their regular food supply, and called them familiarly their "sheep."

Until past the middle of this century the numbers of these fecund antelopes were innumerable, so prodigious that the frontier Dutch farmers looked upon their migrations with fear and alarm. Driven from one part of the country by drought and the lack of necessary vegetation, hundreds of thousands of springbuck would pour from the deserts of the north-west into the Great Karroo, devouring every shred of vegetation before them, and sometimes sweeping away the farmer's flocks of sheep and goats before their irresistible march. The *trek-bokken*, as these extraordinary migrations were called, have for some forty years disappeared from the Great Karroo, in the central parts of Cape Colony; but in the arid plains of Bushmanland, in the north-west of the colony, they are still enacted upon a somewhat smaller scale. Mr. W. C. Scully, the well-known South African writer, held in 1892 the appointment of Civil Commissioner for Namaqualand and Special Magistrate for the Northern Border of the Cape Colony. In that year, such was the trek of springbucks in that part of the colony that Mr. Scully had to issue a hundred stand of Government rifles to the Boers for the purpose of resisting the advance of the innumerable antelopes, which threatened to overrun the cultivated ground, and destroy the crops. Even as it was, the Dutch farmers had much trouble to keep back the invaders. In this arid country springbucks exist for long periods without drinking. Sometimes, however, they experience an intense thirst, and trek forward in their legions in search of water. "It is not many years ago," says Mr. Scully, speaking of the same region of Bushmanland and Little Namaqualand,¹ "since millions of them crossed the mountain range, and made for the sea. They dashed into the waves, drank the salt water, and died. Their bodies lay in one continuous pile along the shore for over thirty

¹ *Between Sun and Sand*. W. C. Scully. Methuen & Co, 1898.

miles, and the stench drove the Trek-Boers, who were camped near the coast, far inland." Mr. Scully's testimony is unimpeachable, and may be accepted as striking evidence of the numbers of the springbuck, even in modern days, in the north-west regions of Cape Colony.

In the year 1876 I first encountered the springbuck in large numbers in the eastern part of the Great Karroo, where a friend of mine, the late Mr. J. B. Evans of Riet Fontein, had a large unfenced run—about 132,000 acres—upon which grazed some 4000 of these animals. We used to enjoy excellent sport with these springbuck, usually by spreading out on horseback at wide intervals, riding down wind, and picking up a shot now and again as we quietly advanced. At times the springbuck take to flight, and scour away up wind. They stick with great pertinacity to a particular point, and by dint of pressing one's horse, the sportsman can in this way get within fairly easy range. But shooting at running springbuck is one of the most difficult feats of marksmanship in the world. It is far better to take the chance of a long shot at the animal as it stands, even although the range be 400 or 500 yards. It is seldom less than 350 yards in Karroo shooting. Cape carts—a kind of hooded, double-seated dog-cart—are sometimes employed by the Cape sportsman; but, to the uninitiated, the horrors of a wild gallop over the rough Karroo veld, in which the driver and gunner are tossed about and bruised like peas in a rattle, will hardly recommend this method. Occasionally we slipped out on to the Karroo before dawn, and, taking advantage of the wind, walked quietly into the veld, and so got a shot or two at the grazing bucks as daylight broke. Sometimes a dry river-bed may be made use of in stalking these animals. The days of unfenced Karroo farms are, however, drawing to a close, farmers are now fencing their runs with wire; and, except in the wild and remote deserts of Bushmanland, towards the Orange River, the free range of the springbucks has been a good deal circumscribed. Shooting upon enclosed runs, however large these may be in extent, is, in my own

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humble opinion, nothing like the same thing as shooting in open country, and the wildness and freedom of the pursuit—features which constitute the very essence of sport—are necessarily much curtailed. In Cape Colony, however, if the sportsman cares to put up with the rough life among the primitive Trek-Boers of Bushmanland, the lack of water, and general aridity and monotony of the country, he can still command plenty of good springbuck shooting in the wild north-west, towards the Orange River; and there, when the periodical trek or migration is going on, thousands of buck are still annually slain with no great trouble by the Boers of that region. The preservation of springbuck in the more settled parts of the colony has, during the last fifteen years, been very successful among many Karroo farmers, and there are now probably more of these antelopes to be found south of the Orange River than there were twenty years ago. In the Transvaal and Orange Free State springbuck were, upon the open plains, extremely plentiful, though probably never so inordinately abundant as in the Cape Colony. At all events one has never heard of the enormous migrations of springbucks in these territories such as obtained in Cape Colony. The Dutch farmers have, however, immensely thinned down even the innumerable springbuck, and, as a rule, herds of moderate size are now only to be found in the Free State and Transvaal upon enclosed farms. These are practically preserved, and it may be said that in the settled portions of the two Dutch republics where game is not now preserved, it is usually non-existent. In British Bechuanaland springbuck were no great while since to be found in plenty upon the high grass plains near the western border of the Transvaal. Since Sir Charles Warren's expedition in 1884-85, they have, however, practically vanished from the eastern part of this country. To the westward, in what may be called the southern portion of the Kalahari, the springbuck may, however, be found in moderate numbers. In Great Namaqualand, now part of the German sphere of influence, large numbers of these antelopes still abound. The Hottentot hunters and pastoralists who inhabit that region

shoot them mainly for their skins, which are skilfully sewn into karosses, and sold in Cape Colony. They are found too here and there in Damara-land, as well as upon the Ovampo Flats, and from thence sparingly up the west coast to Benguela in Portuguese West Africa, where Mr. G. W. Penrice has recently found them. Mr. Penrice's article, which follows the present, deals with the occurrence of these antelopes in that province, the most northerly part of the African continent to which their range extends.

At the present time some of the most favourite grazing-grounds of the springbuck are to be found in Ngamiland and the North Kalahari. Here on the open plains of the Botletli River, and about the numerous salt-pans of that region, they are still to be seen in large numbers. In this region I have had plenty of opportunity of observing these graceful and sprightly creatures in their truly wild state. As we trekked slowly across the grass plains and by the great salt-pans we (my hunting companion and myself) usually had the pleasure of seeing springbuck dotted thickly about the veld, grazing quietly within 500 or 600 yards of our daily camps. During the sharp nights of the period of South African winter (May, June, and July) many of these animals find shelter from the cold and frost among the bushes skirting the plains and fringing the salt-pans. Here, by rising before dawn and riding out with the first streak of daylight, one often found them. They are, like other game, exceedingly fond of these salt-pans, and in the Lower Kalahari, in the neighbourhood of Morokweng, British Bechuanaland, I have found them constantly frequenting the salt bracks, under cover of night, to lick the hard white limestone pans which are found here and there. The edges of these salt-licks were completely hollowed out by the tongues of countless antelopes, which in ages of the past had resorted thither. Upon the vast salt-pans of Ngamiland, usually covered during the dry season with a smooth coating of silvery-gray sand, the springbucks were often to be found in large numbers, and at sunrise nothing could be imagined more beautiful or more characteristic than the sight

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of these fairy-like creatures, pranking, playing with one another, trotting with springy footsteps hither and thither, or standing idly quiet. These salt-pans attracted other game during the night : blue wildebeest, koodoo, ostrich, gemsbok, a few roan antelope, and an occasional lion. These animals had, however, invariably retired by dawn, leaving the springbucks in possession. Upon these pans and upon the adjacent plains near the Botletli we had excellent stalking among the springbuck. Sometimes upon the pans we were enabled to approach them under cover of the bush ; sometimes we rode out on the plains, and, dismounting, sidled up behind our horses until we were within range, when, by dint of patience, we were enabled to get a fair shot. As a rule, however, one was seldom able to approach within less than 300 yards. In Benguela, where these animals have not been much hunted, Mr. Penrice has been able to get within a range of 80 or 100 yards. Springbuck shooting is by no means such easy work as the numbers of these animals would lead one to suppose, and the new-comer in South Africa usually wastes a large number of cartridges for each buck he may be able to bring to bag. As one becomes accustomed to this form of stalking, however, under intense sunlight and upon dazzling plains, where mirage and refraction play strange pranks with atmosphere and distances, the sport becomes more easy and the stalks are more profitable. None the less springbuck stalking requires infinite patience, perseverance, a good and accurately-sighted long-range rifle, and very straight powder. Upon the whole the method of stalking springbuck behind a shooting horse is the best that can be devised. Occasionally the buck can be approached under cover of grazing oxen, and as one rides across the endless flats one can manage to get within range of these shy and suspicious antelopes now and again. On two or three occasions, when in pursuit of blue wildebeest and Burchell's zebra, I have got pretty close up to herds of springbuck, which had been grazing in close company with the larger game.

The flesh of a well-fed springbuck furnishes, to my mind, the most excellent venison to be found in South Africa, tender, possessed of a delicate game flavour, and truly delicious; the kidneys and liver are tit-bits especially to be desired. While shooting in Ngamiland, we preferred the venison of this animal, which we had in plenty, to any other kind of game meat. It is even superior to eland, good though that venison is, and better than the excellent flesh of a young and plump giraffe cow. The springbuck is capable of adapting itself to very different kinds of pasture. Upon the karroos of Cape Colony its food is found in the parched, scrubby-looking vegetation which covers the plains of that part of Africa. This dwarf, shrub-like vegetation is composed mainly of the *Compositæ* and *Portulacacææ*, upon which the sheep, goats, and ostriches of the Cape farmers thrive so well. Barren-looking and withered as it usually appears, except during the brief season of the rains, there must of course be a good deal of nourishment in this kind of pasture. North of the Orange River, in Griqualand West, Bechuana-land, the Kalahari, the Transvaal, the Orange Free State, and Ngamiland, the plains are usually clothed with long grass, and upon this the springbuck in these territories finds its nourishment.

Where water can be found there is no doubt that the springbuck drinks occasionally. But that, like other desert antelopes, it can be and is independent of water for long periods—even for months together—is, I think, quite unquestionable.

The speed of the springbuck is immense. For a short distance it is probable that no other antelope in Africa can surpass it, when it really lays itself out. It is probable, however, that the fleet blesbok is over a distance the faster and the better staying antelope, and the tsessebe has, of course, few if any peers. The springbuck is, unless well hit, extremely tenacious of life, and upon three legs or with a bullet through the body will succeed in making its escape.

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Springbuck ewes drop their fawns usually between September and the end of November, the time varying slightly in different localities. It is probable that the springbuck, from its natural wariness and fecundity and its habit of dwelling upon open plains, whence it can survey attentively the approach of enemies, will be able to resist extermination, even where it is not preserved, longer than any other beast of chase in South Africa.

H. A. BRYDEN.

IN WEST AFRICA

PORTUGUESE NAME, *Cabra de Leque*

BENGUELA NATIVE NAME, *Menya*

These animals are found in large troops on the sandy plains of the west coast. Their range extends in Angola from the mouth of the Quenene River, the southern limit of Portuguese territory, as far north as Benguela; there are no springbuck north of this point, and there is not one to be found beyond a thirty-mile range from the sea. This is accounted for by the fact that the veld alters and becomes unsuited to their habits. Farther south, towards Mossamedes, their range inland is somewhat more extended. In the Benguela springbucks the facial markings are somewhat more defined and the patch of dark cinnamon-coloured hair between the horns is larger than in the more southern form. The weight of a springbuck is about 80 lbs. Their horns vary very much in shape, the point of some bending forwards, others inwards, and others again bending backwards almost as much as in the chamois.¹ The horns of the male are much thicker than those of the female. These animals herd together in large and small troops; males and females are found in the same troops all the year round, and single bucks are often met with.

¹ This last-mentioned peculiarity is seldom if ever noticed in the South African springbuck.—ED.

The springbuck is, I think, as pretty a buck as there is in Africa, and it is one of the few animals that the Portuguese have interested themselves in sufficiently to give a name to. They call it *Cabra de Leque* (goat of the fan), on account of the long white fringed hair that extends along the rump. On occasions the springbuck opens this curious fan-like formation, spreading it out into a broad white patch; when lying dormant it is hardly visible.

Springbucks, when frightened, occasionally give vent to a shrill whistle, but one might hunt them for a whole year without hearing them do so. They drop their young in West Africa towards the end of December and beginning of January, seldom, if ever, giving birth to more than one at a time. They are a very fleet buck, getting over the ground in great bounds, from which they derive their name. A trot is also a very favourite pace. If hunted with dogs they become exceedingly wild and very difficult to shoot. On the Coroque River, south of Mossamedes, I found numbers of springbuck, but it was impossible to approach much within 500 yards of them. In times past the few Portuguese and natives in that country hunted them with dogs and killed numbers of them at a very long range. In the Benguela district the buck are much more tame, and I have often approached on horseback to within 70 or 80 yards of a troop. Firing at them does not disturb them very much; many a time, when I have made a bad shot, and the bullet has passed over them, they have merely given a jump, walked a few yards, and continued feeding, sometimes merely shaking their heads and not moving from the spot at all. They are very fond of returning to the same piece of ground to graze. I remember one particular troop of seven which returned day after day to the same place, and I shot every one of them on different occasions, all within a quarter of a mile of the same spot. The springbuck of the west coast never fatten, but, although poor in condition, their flesh is excellent. They are very fond of the sandy plains, and seem able to exist on very

scant herbage; they also feed a good deal on the mimosa bush. They seldom if ever drink, the early morning dews apparently being sufficient for them. They are very fond of the mountains;¹ on the top of a range which extends close to and runs parallel with the coast, they may be found in large numbers. They also seem to like associating with the zebra, and, during the rains, when these animals come near the coast, springbuck and zebra may be seen dotted about on the open plains, all feeding together.

At first springbuck shooting is by no means easy, and one can fire away a large number of cartridges and not bag a buck. There are various reasons to account for this preliminary failure. Springbuck have long legs, and not very deep bodies; the atmosphere, and also the colour of the ground, cause the sportsman to fancy that the buck are much closer than they really are, but when these difficulties are got over, and one understands their ways, they are easily shot. Springbuck shooting, either on foot or on horseback, is most fascinating, and is a sport of which I have never tired; the buck may be hunted at any hour of the day, and seem to be always on the feed. At certain seasons the springbuck congregate together in one vast herd, and trek to some other veld, where they disperse again into smaller troops. I only saw this on one occasion in Angola; riding out one afternoon I came to a large open plain, which was simply covered with buck; there must have been several thousands. I galloped alongside of them and then got off the horse and watched them go past. They kept their line, swerving very little, although I shot three of them. It was a great sight, and one I shall never forget. The next day they had all vanished. One never finds the springbuck in country where there is high grass; they seem to like to be able to see all round them. During one year of exceptionally heavy rain on the coast, the grass grew very long, which resulted in all the buck trekking farther south to a sandier veld.²

¹ This is a trait quite unknown in South Africa.—Ed.

² Livingstone has noticed this fact, p. 104 *Missionary Travels*.—Ed.

This is a wonderfully tough animal to kill, and a springbuck will go far, even with three bullets through him, if the missiles are badly placed. One buck I shot had only three legs, the other having apparently been shot off a long time previously ; the animal had quite recovered from its wound, and the flesh had grown over in a large lump at the end of the stump.

G. W. PENRICE.

THE GAZELLES

Genus GAZELLA

The elegant little antelopes commonly known (from the Arabic name of one of the species) as gazelles are so familiar to all and so similar to one another, that they are one of the easiest groups to recognise. Lacking a fold of skin in the back, and with six pairs of lower cheek-teeth, they have a neck of average length, and horns (in the African species common to both sexes) with the basal three-fourths of their length convex in front. Generally the colour is sandy above and white below, and in all the African species the face is marked with longitudinal dark and light streaks. Tufts of hair are usually developed on the knees, and the tail in the African forms is of medium length. In all the latter glands are present on the face, and corresponding depressions for their reception in the skull below the sockets of the eyes. In the bucks the horns are stout, boldly ridged, and in most cases, though not all, not much longer than the head, the tips being generally more or less curved forwards or outwards, but occasionally inwards ; in the does they are shorter, straighter, more slender, and display less constancy of form in the individual species. Gazelles which are common to a large portion of Asia and the more open districts of Africa, include a very large number of species, of which the following fifteen are African.

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A. The fawn of the back not invaded by the white of the rump.

- | | |
|----------------|------------------------------------|
| 1. Dorcas | Gazelle (<i>Gazella dorcas</i>). |
| 2. Edmi | " (" <i>cuvieri</i>). |
| 3. Speke's | " (" <i>spekei</i>). |
| 4. Pelzeln's | " (" <i>pelzelni</i>). |
| 5. Loder's | " (" <i>leptoceros</i>). |
| 6. Isabella | " (" <i>isabella</i>). |
| 7. Heuglin's | " (" <i>tilonura</i>). |
| 8. Red-fronted | " (" <i>rufifrons</i>). |
| 9. Rufous | " (" <i>rufina</i>). |
| 10. Thomson's | " (" <i>thomsoni</i>). |

B. The white of the rump extending more or less on to the fawn of the back.

- | | |
|------------------|-------------------------------------|
| 11. Peters's | Gazelle (<i>Gazella petersi</i>). |
| 12. Grant's | " (" <i>granti</i>). |
| 13. Sömmerring's | " (" <i>sömmerringi</i>). |
| 14. Addra | " (" <i>ruficollis</i>). |
| 15. Dama | " (" <i>dama</i>). |

Of Grant's gazelle two races, a northern and a southern, may be recognised ; these being considered by some as distinct species ; and the Mhor (*G. dama mhor*) seems but to be regarded as a variety of the Dama.

DORCAS GAZELLE (*Gazella dorcas*)

Rhozal OR *Hemar* OF ALGERIAN ARABS ; *Ghasala* OF
ARABS OF PALESTINE

This and the three, *G. cuvieri*, *G. rufina*, and *G. leptoceros*, comprise, so far as is known, the only species of the genus found in North Africa between the western frontier of Egypt and the Atlantic Ocean north of the Sahara Desert. With the exception of *Gazella dorcas*, the common gazelle (which is found elsewhere in the Mediterranean basin),

these gazelles are peculiar to North Africa. *Gazella dorcas* is more commonly met with in the less inhabited and cultivated parts of Algeria, Tunis, and Tripoli. Its range also extends eastward to Egypt, Syria, Palestine, and parts of Asia Minor. It is one of the smallest of the gazelles, standing barely 24 inches at the shoulder; but it is also one of the most beautiful of these lovely antelopes. Its coloration (strongly marked in the adult male) is a red-fawn colour on the upper and outer parts of the body, with a white belly, white inside the hocks, white rump, white chest, and a white or cream-coloured streak round the eyes and parallel with the nose, extending to the upper lip. Along the sides of the barrel, where the fawn-colour meets the white, there is a deep brown streak. Two dark brown stripes also run parallel with the nose, one over the eye, and one between the eye and the upper lip. The tail is black. All these four species of gazelle are horned in both sexes, the horns of the male being much more robust and generally more lyrate than those of the female, which in most cases are very nearly straight prongs. The horns of the male dorcas gazelle are sometimes as much as 12 or 14 inches in length, somewhat lyrate in shape, and with the tips slightly recurved. They are strongly annulated. The dorcas gazelle does not care for the absolute sandy desert, but prefers the open plains, steppes, and foothills, which are covered with scrubby vegetation. Even at the present day in the south of Tunis these little animals can frequently be shot from horseback, as their curiosity or inquisitiveness leads to their being taken unawares. Usually, however, they are run down by swift greyhounds.

H. H. JOHNSTON.

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EDMI GAZELLE (*Gazella cuvieri*)

Edmi OR *Admi* OF ARABS (ALGERIA); IN TUNIS, *Edem*

This is emphatically a mountain animal, and is found in Morocco, Algeria, and Western Tunis. It is larger and heavier built than the dorcas gazelle, the adult males sometimes attaining a height of 31 inches at the shoulder. The horns of the male reach as much as 14½ inches. It is more fulvous than the dorcas gazelle, and more sheep-like in build. Mr. E. N. Buxton states that Cuvier's gazelle "climbs like a chamois to the tops of the highest mountains, on the rockiest ground, and is often found in the juniper forests on the mountain slopes." The present writer once obtained a live specimen from the cork-forested mountains, 6000 to 7000 feet in height, on the borders of Tunis and Algeria.

H. H. JOHNSTON.

SPEKE'S GAZELLE (*Gazella spekei*)

Dhero OF THE SOMALIS

Speke's gazelle inhabits the high plateau of Somaliland, ranging from the Golis Mountains south to Ogaden—the Ogo or cold country of the natives. It is also to be found north of the range in the vicinity of Laferug, where it meets the lowland species. This species is smaller than its southern relative, and in appearance differs from it in various particulars, not the least of which is its peculiarly wrinkled nose, possessed by both sexes, but greatly modified in the female; and this feature would easily cause it to be distinguished from all other known species of gazelle.

In its habits it resembles Pelzel's gazelle, and frequents the same kind of country—bare stony stretches with bunches of stunted, wiry grass scattered here and there—and it is very seldom met with among bushes or

trees of any size, although I have known it go into pretty dense clumps of jungle. I believe, however, on these occasions it sought such retreats as places of refuge, more from necessity than from choice.

It is a rather shy animal, more so I think than the lowland species, and is at times very wild and difficult to approach, compelling the hunter to take long and hazardous chances in order to secure a specimen. It is a very watchful creature, each individual of a band adding its own powers of discovering danger to that of the entire company. When any unusual object is perceived the whole troop stop and watch it intently, for, like all gazelles and antelopes, this species is provided with a large amount of inquisitiveness, and they will frequently stand motionless and gaze a long time before commencing to run. When first startled they only go a short distance, and if the cause of their fears has disappeared they will begin to feed or play with each other, the males engaging in mock battles, or chasing each other with great speed, for they are exceedingly swift. If much persecuted they will abandon a locality altogether.

The horns of the male are stouter and more curved than those of Pelzeln's gazelle, and, like these, are annulated nearly to the tip. Sometimes they will measure nearly, if not quite, 12 inches along the curve. Those of the female are lighter, straighter, and not so deeply annulated, and measure about 9 inches. Speke's gazelle is a stouter animal than the lowland species, and has a much thicker coat, which is perfectly natural considering the colder climate of the high plateau. D. G. ELLIOT.

PELZELN'S GAZELLE (*Gazella pelzelni*)

Dhero OF SOMALIS, AS WITH SPEKE'S GAZELLE

This is the gazelle of the lowlands, the Guban country of the Somali, indicative of the hot region, and is rarely seen beyond Laferug, lying on the north side of the Golis range of mountains, some few miles from their

base. This species and the upland gazelle seem to meet here, for I have seen both on the same day, when hunting in the vicinity of Laferug. It is larger than Speke's gazelle, but in their general habits the two species are very much alike. Pelzeln's gazelle is usually met with on dry and stony ground covered with low bushes, in such a forbidding sterile country that it is difficult to imagine where, or in what manner it can obtain sufficient nourishment from the barren, desert-like places it selects for its habitation. It goes in small bands consisting of from two or three to about a dozen individuals, and it is not very often a single individual is encountered; whenever one is seen alone it is usually some old buck driven to a solitary life. Eleven was the greatest number I have ever met with in one troop.

As a rule, Pelzeln's gazelle is not a wild creature, and one can generally approach either single individuals or a number scattered about sufficiently near to make very sure of the shot; but, like all wild animals, where it is much hunted it becomes very wary and watchful. Whenever a buck is seen alone, it is not very difficult to make a successful stalk and approach him closely, for, deprived of the companionship of the more watchful doe, he is less alert to probable dangers.

It possesses much curiosity, and its inclination to indulge in this failing often costs it its life, for, in its great desire to ascertain what some strange object may be, it delays its departure to a safer locality, until too late, and the singing bullet has laid its senseless form upon the sand. This gazelle would seem to be indifferent as to whether it can procure water or not, for this necessary fluid for most creatures is quite absent from many localities inhabited by it. Of course, in the brief rainy season, when showers are of daily occurrence, pools are formed in the cavities of the rocks, or in hardened places in the soil, from which water can be obtained, perhaps, many days in succession; but in the dry season this animal must go sometimes for long intervals before it may find an opportunity to quench its thirst. The dews

sometimes are very heavy, and perhaps the moisture obtained from the grass in the early morning is sufficient for its needs. Both sexes carry horns, the male's rather straight, and annulated nearly to the tips, which are inclined to turn slightly forward. Those of the females are straighter and more slender. The average length of the male's horns would be about 11 inches along the curve; that of the females possibly 7. In colour there is considerable variation among individuals, but it is not easy to explain the cause. The typical style has a broad, conspicuous chestnut band running lengthwise on the body just above the white of the belly. But certain of these gazelles, evidently of equal age and the same sex, taken at the same time and place, and in the same condition of coat, were entirely without this distinguishing mark. It is difficult to account for this, unless it is an evidence of individual variation, for the specimens were not confined to any especial locality; nor was it an indication of age, for fully adult animals were destitute of the stripe, and, as I have already said, neither was it confined to either sex. Pelzeln's gazelle is a handsome, graceful creature, very fleet of foot, and an ornament to any locality in which it dwells, but its flesh, I regret to say, was possessed of little flavour, not often tender, and always destitute of fat.

D. G. ELLIOT.

LODER'S GAZELLE (*Gazella leptoceros*)

Rhim OR *Reem* OF ARABS OF ALGERIA; *Ghazal abiad* (WHITE GAZELLE)
OF ARABS OF TUNIS AND EGYPT

Loder's gazelle is a very well-marked species. It is not a large animal, not larger than the dorcas gazelle. Its general colour is very pale pinkish buff or sandy, which lightens to cream-white on the belly and on the inner side of the limbs. The face-marks and the broad lateral stripe along the barrel are scarcely discernible, as they are hardly deeper in

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tone than the general buff colour. The tip of the tail is dark brown, the ears are white; altogether this gazelle looks washed-out in colour, compared with the brightly marked dorcas. It is still more peculiar in its horns and hoofs. The latter are thin, narrow, and sharp-edged, and somewhat divergent. They are adapted to travelling over loose sand. The horns are proportionately long, showing a striking resemblance to the horns of Thomson's gazelle, which they also resemble in shape. They are nearly straight, widely divergent, curved slightly backwards, and have the tips a little recurved. Their annulations are well defined. The horns of the female resemble those of the male, but are thinner, straighter, and not quite so long. Loder's gazelle apparently inhabits the desert regions of the Sahara from Egypt (where specimens have been obtained) to the hinterlands of Tunis, Algeria, and possibly Morocco. The present writer has met with it in the Tunisian Sahara, whence live specimens are occasionally sent to the town of Tunis for sale. H. H. JOHNSTON.

ISABELLA GAZELLE (*Gazella isabella*)

This gazelle, found along the Red Sea littoral, between Suakin and Massowa, and thence through the interior of Abyssinia to Bogosland, Barca, Taka, and Kordofan, stands about 25 inches in height, and is of a light fawn colour, darker towards the rump, and with a faint lateral band showing along the sides. The centre of the face is marked by a dark streak of rufous. The under parts, breast, and rump are white. A broadish white line runs from in front of the eye, from the base of the horns—on either side of the face,—to the muzzle. Beneath this is a streak of darkish fawn. The horns are ringed nearly to the tips, divergent, curving backwards, and, towards the tips, inwards. This is a true desert gazelle, found in small bands of from two to half a dozen. Individuals vary a good deal in colouring. Horns measure from 7 to 10½ inches. H. A. BRYDEN.

Heuglin's and Red-Fronted Gazelle 351

HEUGLIN'S GAZELLE (*Gazella tilonura*)

TIGRE NAME, *Tel-Badu*

This rare and little-known species is at present identified only from Bogosland, Abyssinia. The general colouring is "deep sandy," the central face band only slightly darker than the rest of the body-colour. A dark lateral band along the flanks. Under parts and a space round the eyes white. The horns are lyrate, strongly incurved in the males—somewhat like a springbok's—and measure as much as $11\frac{1}{2}$ inches over the curve. The range of this gazelle appears to be on elevated plains, more or less bushy, from 3000 to 5000 feet above sea-level. H. A. BRYDEN.

RED-FRONTED GAZELLE (*Gazella rufifrons*)

GAMBIA NATIVE NAME, *Semi*

This is a West African gazelle, found in Senegal and Gambia, and is sometimes known as the Senegal gazelle. It is rather a heavily built animal, compared with its many fairy-like congeners. Height at shoulder about 24 inches. General colour bright sandy rufous, the legs paler. Belly white, and a white facial streak with darkish streaks beneath. The knee-tufts, so commonly seen in gazelles, are absent. Horns strongly ringed, stout, divergent, and curving backwards and upwards. The longest recorded pair measure $10\frac{1}{2}$ inches, $6\frac{3}{8}$ inches from tip to tip. Examples of this species are, or were, lately living in the London Zoological Society's Gardens. A very handsome species. H. A. BRYDEN.

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RUFIOUS GAZELLE (*Gazella rufina*)

ARAB NAME BELIEVED TO BE *Shergi*

This is a rather large animal, about 30 inches in height at the shoulder, very brightly coloured, chiefly in tones of chestnut-red. The general colour of the body is pale chestnut with dark reddish-chestnut markings on the face, and a dark red-black band separating the ruddy tint of the upper part of the body from the white belly. The red colour of the body deepens into dark brown along the middle of the back. The tail is black. The hoofs are large and heavy. The horns are small in proportion to the size of the animal—about 11 inches—and are only ringed for a little more than half their length. The backward curving of the horns and the recurving of the tips are much less marked than in the dorcas gazelle. The only specimens of the rufous gazelle known to us have been brought from Algiers by Sir E. G. Loder. The animal would seem to inhabit fairly well-watered country, and is possibly found in Western Algeria and the adjoining parts of Morocco.

H. H. JOHNSTON.

THOMSON'S GAZELLE (*Gazella thomsoni*)

ONE OF THE SEVERAL SPECIES INCLUDED UNDER THE SWAHILI
NAME, *Swara*

BRITISH EAST AFRICA

This species has a much more restricted range than its larger relative, Grant's gazelle. It seems to be confined entirely to the high open plains of Masailand, which are comprised in a strip of country of no great width, extending from about the latitude of Kilimanjaro (where Mr. F. J. Jackson, to whom I am indebted for much valuable information, tells me it is found

PLATE X

- | | |
|-----------------------------------|---------------------------|
| 1. Thomson's Gazelle Head. | 5. Mhorri Gazelle Head. |
| 2. Grant's Gazelle Head (male). | 6. Clarke's Gazelle Head. |
| 3. Grant's Gazelle Head (female). | 7. Waller's Gazelle Head. |
| 4. Sæmmerring's Gazelle Head. | 8. Beira Antelope Head. |



in the plains on both sides of the northern half of the mountain) in a north-north-west direction to near the equator, and then trending slightly to the east of north for about another degree over the Laikipia plateau, on the north-eastern edge of which, where it is bounded by the Lorogi range, I have myself met with it,¹ its limit here coinciding with that of Jackson's hartebeest.

It is found in herds, often of considerable size, and I have it on the above-named unimpeachable authority that between Lakes Naivasha and Nakuru it is more plentiful than anywhere else. Grant's gazelle is also numerous wherever Thomson's is found, and the two kinds may often be seen intermingling.

Thomson's is quite a small gazelle. The measurements of an adult male carefully taken by me were as follows :—

Height at shoulder, 26 inches ; length from between horns to root of tail, 38 inches ; tail, $7\frac{1}{2}$; girth behind shoulders, 26 inches.

Mr. Jackson has given me the following notes of dimensions taken by him.

Average weight (male) about 55 lbs. ; female about 15 lbs. less.

Average height (male) about 26 inches ; female about 24 inches.

Average total length (male) about 49 inches ; female about $45\frac{1}{2}$ inches.

(The length here is from tip of nose to tip of tail.)

All the measurements given are in straight lines.

It is a pretty and graceful little beast, not unlike Grant's in colouring, but with the addition of dark stripes along the sides.

The horns of the male are also somewhat similar to those of the latter, but on a much smaller scale, taping about 13 inches to 15 inches when mature. The posterior part of the head is thick and prominent, and has the heavy appearance noticeable in that of a ram sheep. The female has very small, thin horns, almost rudimentary in some specimens.

There has been a little uncertainty about the East African gazelles,

¹ I have in my possession a skull obtained in this locality.

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owing, no doubt, to insufficient data on which to found authoritative statements as to the different species. Some writers have suggested that there are two varieties of *Gazella thomsoni*, or that there may be a third species, intermediate between *granti* and *thomsoni* inhabiting the same localities where these two are found.¹ But I think this idea (which Mr. Jackson agrees with me in believing to be quite a mistake) has arisen from their confusing immature animals with adults, and from the circumstance that the colouring of young *granti* is more like that of the smaller species than is the case in adult specimens. What are really needed to clear up any doubts of this kind in such cases of allied species are more complete series of specimens of each in all stages of development.

There is here a very interesting field open for investigation by some sportsman visiting the country, who will be at the trouble to take accurate measurements, keep careful notes, and preserve with every precaution against damage numbers of complete specimens, each labelled on the spot.

I have not found this gazelle difficult to approach. This is perhaps because it inhabits country where the natives do not, as a rule, molest the game, for it is not the custom of the Masai to eat the meat of wild animals. I have, however, not killed many myself, having preferred to devote my attention to bigger beasts when seeking to provide meat for a large caravan while passing through this gazelle's habitat. On one occasion, however, when we were in urgent need of food and no other game was procurable close by, I remember shooting several single males that were scattered about, each by itself (as is the habit of the very old rams), in the perfectly bare plains south of Naivasha, without any trouble, by simply walking after them.

A. H. NEUMANN.

¹ This question has no bearing upon *G. petersi*, whose habitat is quite distinct, though in other respects it answers to the above description.

PETERS'S GAZELLE (*Gazella petersi*)SWAHILI NAME, *Sala* OR *Swara*

A large gazelle, measuring as much as 33 inches at the shoulder, found along the coast regions of East Africa, and thence as far inland as the Galla country. It bears a strong resemblance to Grant's gazelle, and is of a bright reddish-fawn, with white facial streaks, and a strong central band, dark brownish at the muzzle; there is a broadish dark streak along the flank, and another smaller streak, running horizontally down the rump, separating the white from the fawn colour. The white marking of the rump is very noticeable, impinging well up on to the back. Under parts, like rump, snow white. The horns of the male of this fine gazelle, although handsome trophies, measuring as much as 22 inches over the curve, are neither so long nor so striking as in Grant's gazelle. They are straighter and have not so strong a backward curve. Those of the females are much inferior. This species is very nearly allied to *granti*, has the same habits, and was, in fact, for some time looked upon as a mere local variety.

H. A. BRYDEN.

GRANT'S GAZELLE (*Gazella granti typica*)

IN BRITISH EAST AFRICA

NDOROBO NAME, *Ngoli*; SWAHILI NAME, *Swara*¹

This, the largest and handsomest of all the gazelles (about equal in size to the impala), is also the commonest and most generally distributed in East Equatorial Africa. It is a most beautiful creature; its delicate colouring, elegant shape, ornamental horns, and graceful movements

¹ This name is used by the Swahili indifferently for any gazelle (Grant's, Thomson's, Waller's) as well as for the impala.

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combining to make its herds among the most attractive features of the interior landscape, wherever the nature of the country is adapted to its requirements.

In this latter respect it is one of the most accommodating of the antelopes, and is met with almost everywhere over a vast region. It is not, so far as I know, found anywhere within 150 miles, at least, of the sea (in the coast belt its place is taken by its rarer and somewhat smaller near relative *Gazella petersi*) ; but in the interior, except in densely bushed or rankly grassed areas, on high mountains, or of course where the land is much cultivated and thickly peopled, one can hardly ever travel a day without seeing at least a few specimens of this ubiquitous and pretty little beast. Alike in bushy wildernesses and treeless wastes, on level plains and stony hills, even the most rugged—as at the southern end of Lake Rudolph, where there is little but bare rock—Grant's gazelle is at home. But in the open country it finds its most congenial habitat, and there it is most numerous.

It is often seen in company with zebra, oryx, or (in their own districts) with Coke's hartebeest, or topi, and not infrequently with giraffe ; and when these animals are being stalked it is apt to be very much in the way. Especially is this so in the case of the last named ; for the gazelle seem sometimes to act as outposts for those wary beasts, spying under the bushes while they look over.

The size of the herds varies commonly from quite a few individuals to twenty, thirty, or up to about fifty ; but in specially favourable localities, such as the plains of Masailand or the high open plateau of the Ongata Barta, south of Mount Nyiro, they may be much larger, as many as a couple of hundred being sometimes seen together. The following of each master ram usually consists of from half a dozen to a dozen does ; and often such little parties are seen separately, the ram of course resenting any other male intrusion except of immature bucks. The larger herds are

composed of any number of such families which have united their forces, and consequently there are many rams in these. But they do not appear to fight when meeting thus, except if the ownership of the harem specially appertaining to each be disputed; and should the herd break up it is resolved into its component parts again, each patriarch taking charge of his particular wives. There are, of course, many vanquished bachelors, who, as is the custom of most animals under such circumstances, associate together in male herds.

Mr. T. E. Buckley tells me of an encounter he once witnessed between a wounded ram and another. He says: "One we wounded and were following up, seeing another herd not far off, went up to it, when the master of the herd came out to give battle to the intruder, who, although wounded, fought so well as to keep the sound one sufficiently employed to enable us to run up close to them, and thus secure both. They fought desperately and took no notice of our approach, which, from the nature of the ground, was almost quite open."

With regard to the range of this species, southward it stretches into German territory; Ugogo, whence it was first described, being apparently its most southerly extension. In a westerly direction I can give no definite line. It is certainly present all through Masailand and the Suk country (as pointed out by Mr. F. J. Jackson), and is found on parts of the Mau plateau; but not, so far as I am aware, anywhere in the country round about Lake Victoria Nyanza. In fact the last-named region is unsuited to it, for it is essentially a denizen of deserts and plains, barren hills and valleys, or upland pastures; the rank grasses and coarse vegetation produced by damp and steamy fertility, such as prevails in the basin of that lake, are not to its taste, nor are the conditions in accord with its habits. I have found it as far north as the north-east corner of Lake Rudolph—from about a fourth to half-way down the east coast *granti* is particularly numerous—and all the way from the Tana River thither

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it is present almost everywhere ; but how far east of this line it extends I am unable to say accurately.

Both sexes have horns ; those of the male, which are most gracefully curved and corrugated almost to the tips, measuring as much as 26 inches and upwards in fine specimens ; the female has thin horns of some 12 inches or so in length.¹

Grant's gazelle is among the species of antelope which eat both grass and leaves ; a kind of wild fruit or berry borne by a plant common in some parts, and which the large paaui is partial to, is also frequently among the contents of its stomach. It may be seen far from water, but I do not think it is entirely independent of it, as some creatures appear to be. It certainly drinks, for I have seen it ; and it seems generally more numerous where water is obtainable in the vicinity. But probably its needs in this respect, as is the case with some other antelopes, depend to a great extent on the character of the herbage it is subsisting on.

On Lake Rudolph the does seem to drop their fawns about April ; but the breeding season must vary in different districts. I have certainly met with young fawns myself in September a little farther south, and near Machakos I remember seeing them in January ; while Mr. Buckley, who has shot in the Kilimanjaro country, tells me that there the does begin to drop their fawns about the end of February. But where there is so little difference between the seasons, as is the case under the equator, animals are not very regular in their times of breeding. The newly-born fawns are left lying alone, as with other antelopes ; and while they are very young the mothers often feed apart from the herd near where their young are concealed, either one by herself or in company with one or two others similarly situated.

The only sound I have heard this antelope emit is a kind of goat-like sneeze, which is its cry of alarm.

When in good condition the meat of this gazelle is excellent ; and, being

¹ The longest recorded pair of horns measure in the male 28½ inches, in the female 17½ inches.—Ed.

so generally distributed an animal, it is a great stand-by to the traveller for supplying his larder. As a rule they are not difficult game to get within shot of, so that one or two may generally be procured when needed. In the open, however, where there is no possibility of stalking, they are sometimes very tantalising, having a habit of trotting languidly on, just as the hunter is getting within convenient range, the horns of the rams bobbing up and down over their backs as they nod their heads lazily in time with their action, as if it were too much trouble to hold them steady.



FIG. 32.—Grant's Gazelle (*Gazella granti*). Photographed by Lord Delamere near Mount Marsabit, Rendile Country, S.E. of Lake Rudolph.

Then, when they have increased the distance between them and their pursuer, they slacken their pace to a walk again, still keeping only their white sterns towards him, till he once more gains on them, and so on. A plan which sometimes succeeds under such circumstances is, instead of following them, to walk round in a semicircle as if going past, but gradually edging nearer. They are then more likely to stand and allow of a shot being got than if followed directly. But these tactics are better commenced from some distance off, as, of course, you must not get to windward of the game in the course of your manœuvres. It not infrequently happens that

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when one of these bucks has been killed, the others accompanying it will stand and allow of a second shot being had. This is quite allowable when meat is wanted, as it generally is for the hungry men of a marching caravan in Africa, the animals themselves, too, being so numerous. In some cases if you sit down and wait patiently as near as you can conveniently get to *granti* without frightening them away, but where they can see you, they will come gradually towards you in an inquisitive manner, as if trying to find out what you are. Natives rarely succeed in capturing this antelope; it is too wary for them.

At the western base of the Lorogi Mountains I met with what I believed to be a local variety of *Gazella granti*, distinguished by longer hair and more distinct markings. It has been described as a sub-species by Mr. Oldfield Thomas in the *Annals and Magazine of Natural History*, from adult skins brought home by me;¹ but I still regard its distinctive characteristics as being caused solely by peculiar local climatic conditions.

Mr. F. J. Jackson has kindly given me some notes of weights and measurements of *granti*, carefully taken and recorded by him in the neighbourhood of Lake Naivasha, which I am very fortunate in being able to quote:—Male, weight, 158 lbs. to 167 lbs.; height, 3 feet $\frac{1}{2}$ inch to 3 feet $2\frac{1}{2}$ inches; length, 5 feet 7 inches to 5 feet 10 inches. Female, weight, 106 lbs. to 111 lbs.; height, 2 feet $8\frac{1}{2}$ inches to 2 feet $9\frac{1}{2}$ inches; length, 4 feet $11\frac{1}{2}$ inches to 5 feet $4\frac{1}{2}$ inches. He found that about Baringo they ran considerably smaller, no doubt owing to the poorer pasturage there.

A. H. NEUMANN.

GRANT'S GAZELLE—NORTHERN RACE (*Gazella granti notata*)

The sub-species referred to by Mr. Neumann, at the end of the preceding article, a specimen skin of which he presented to the National

¹ See following article.

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Collection, was described as follows by Mr. Oldfield Thomas, of the British Museum :—

“ *Gazella granti*, *notata* sub-sp. n.

“Similar in all essential characters to the typical *G. granti*, but distinguished by the greater length, breadth, and intensity of both the dark and light lateral bands. The former is nearly black, the latter pale buff, and succeeded above posteriorly by a second dark band, lighter than the main lateral band, darker than the centre of the back. Pygal band black and strongly defined.

“*Habitat*.—W. slope of the Lorogi Mountains, British East Africa. Collected and presented by Arthur H. Neumann, Esq. This handsome gazelle has since been obtained in the same region by Mr. H. S. H. Cavendish.”¹

It remains to be said that this gazelle has been raised by Mr. Thomas to the dignity of a distinct species during the last year, 1898.

H. A. BRYDEN.

SÆMMERRING'S GAZELLE (*Gazella sæmmerringi*)

ARAB NAME, RED SEA LITTORAL, *Arial*; SOMALI NAME, *Aoul*;

ABYSSINIAN NAME, *Meidafihel*

This fine animal is a native of North-East Africa, being especially numerous in certain parts of Somaliland. Formerly it was distributed all over that portion of the Horn of Africa, and it was a very common occurrence to perceive large herds on the maritime plain which lies between the Golis range and the sea. Constant persecution by hunters, both native and foreign, has had the effect of compelling the species to retire south of the mountains, and at the present time an individual is rarely seen near the

¹ This statement has since proved to be erroneous, Mr. Cavendish having mistaken the species.

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coast. The physical condition of the country does not seem to make any difference to this gazelle, and it is found either in parts thickly covered with trees and bushes, or on plains entirely destitute of timber ; but if any preference is given, I think it is to the plains, for the herds congregated in such localities are much larger than elsewhere, and sometimes contain many hundred individuals. It cannot, however, be deemed a denizen of the plains in the sense that oryx and hartebeest are, with which species the aoul, as the natives call this gazelle, is accustomed to associate on most friendly terms.

Sømmerring's gazelle is not a graceful animal, having a short neck, rather clumsy head, and a heavy body, and its general appearance being very different from that generally associated with the light-footed gazelle. Of its speed, however, there can be no question, for it is very fleet, and when running it has the habit of jumping to a considerable height and for long distances, not unlike the springbuck. By nature this is not a very wild species nor particularly suspicious, but of course in those districts where it is much hunted it becomes very wary.

Apparently, like many of the animals in Somaliland, this gazelle is independent of water, for in that thirsty land little of the fluid is obtainable, and the aoul is frequently met with many miles from any place where an opportunity for allaying its thirst is offered. The entire country is so destitute of water that all wild animals inhabiting it must have great difficulty in procuring it, since, with the exception of pools in the brief rainy season, a supply can only be obtained by digging in the dry beds of the rivers, a proceeding entirely beyond the power of a ruminant. As a rule the aoul is easy to approach within shooting distance, that is, between one and two hundred yards, though sometimes it will be necessary to shoot farther than this. When among bushes, it is comparatively easy to get quite near this animal, if the stalk is made with knowledge and judgment. Aoul can be distinguished for a long distance, the large white patch on the

hind-quarters always showing very distinctly, and causing them easily to be recognised from the other animals with which at the time they may be associated.

This gazelle is possessed of a great deal of curiosity, and when it perceives any unusual object, will stand motionless for a considerable time gazing at it ; and, even after its fears have gained the ascendancy, and it has commenced to run, it will, after going a short distance, stop and turn to look again at the cause of its fears. Although of a rather large size, at least for a gazelle, the aoul presents but a small mark, and unless the bullet strikes a vital spot, the animal will probably escape. Even a broken leg does not appear to incommode it much, nor hinder it from running at full speed on the three that are sound.

Both sexes possess horns, which vary greatly in length and in their curves. The shape is generally lyrate, the points turning inward and forward. Sometimes those of the male may measure 20 inches and more along the curve, but the average is much less than this, something like 12 or 14 inches. The smaller pairs are, however, much more shapely than those of the extreme lengths, the latter losing much of the characteristic graceful curve. The horns of the female are quite slender, and do not possess nearly as much curve as those of the male.

In Somaliland I should judge the females drop their fawns in April, for in June, when I arrived south of the Haud beyond Toyo plain, very many were seen that seemed from four to eight weeks old. These would run along by the side of their mothers, and appeared to have no difficulty in keeping up with the bunch or herd, even when going at full speed. Although a fine animal, yet, on account of its somewhat heavy form, Sœmmerring's does not equal in beauty and grace many other species of gazelle.

D. G. ELLIOT.

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IN THE EASTERN SOUDAN, NEAR SUAKIN

During the piping times of peace, Suakin, the capital of the Red Sea Littoral, is by no means an undesirable quarter for the sportsman, be he military or otherwise. But there have not been many such interludes during the past fifteen years, and when raids are out and the place is on the footing of a fortress, leave of absence for the pursuit of game, amongst the beautiful mountains which lie range on range so temptingly within a dozen miles of the coral beach, is out of the question. Even a hunt along the foreshore, or on the scrub-covered plain which lies at the foothills, is a matter of grave consideration and possible risk.

It was in October 1897 that I made my first expedition in the direction of the walls of Tiroi and met for the first time the arial of the country. It is not until the ghastly heat of midsummer has been tempered by occasional showers,—tropical showers be it understood,—and the sun has crossed the equator in his annual visit to the southern hemisphere, that the arial appears on the Red Sea plain, and his advent is duly reported by the natives to the white men in Suakin.

One afternoon, accordingly, I set out with "Spotty," an Arab hunter of great repute, and, each mounted on a camel, with a minimum of food and baggage and a maximum of water, we quickly cleared the out forts and set our course for Tiroi. On the road Spotty halted to converse with a friend, a Hadendowa or Fuzzey, and a real wild man of the mountains at that, and after a few words, induced him to jump up behind him on his own camel, and so we proceeded till the sun went down and the white walls of Suakin disappeared behind us, and the stars in their courses twinkled across the southern sky.

Just as it grew quite dark we became aware of a large herd of arial, thirteen or fourteen in very close proximity, not more than 100 yards off, but there was no light for shooting and we did not molest them. Shortly

afterwards, noticing a rustle in the grass alongside, which I pointed out to Spotty, the Fuzzey dismounted and picked up a few yards of telegraph wire which my camel had got foul of, and I realised that we were in the neighbourhood of M'Neill's zereba, in the defence of which this wire had played a part many a year ago. An hour later saw us bivouacked in Kor Gwab. We were up with the dawn, and at daylight viewed four arial about three-quarters of a mile distant. The procedure in hunting them is nearly always the same ; both camels sat down, and Spotty rapidly removed the saddle from his own ; then, leaving the Fuzzey on guard, we proceeded on foot, using the camel as a stalking horse, and circled round to leeward of the game. Little bits of things they looked to make such a fuss about, only a size larger, in fact, than the ordinary gazelle—much lighter in colour, however, with white on their legs, and evidently much bigger in bone at the hocks. It was a very easy stalk, and I had no difficulty in hitting the ram dead and knocking over two more with three cartridges. Venison was required at Suakin for the approaching visit of the Sirdar, or I would not have fired at the does. Spotty was naturally delighted, far more so than myself, for the last cartridge had jammed tight, and my weapon, a sporting Martini carbine, was useless. A whistle brought the Fuzzey to us, and he nodded sagaciously at the open breech block of my carbine, and scratching his mop of a head with his scratch stick, made a statement in Hadendowa, which, Spotty re-interpreting into Arabic, was an announcement that he had seen that sort of thing happen before. As our friend had assisted in breaching the square at Teb or Tamai, I considered him perfectly qualified to make any observations he pleased on jammed rifles. But what to do ? Sixteen miles from quarters, and not a bush or tree visible capable of furnishing a clearing rod.

The Fuzzey then disappeared, and in dejection we re-saddled the camel, gralloched two of the arial, and watched the third one limping along very sick on the horizon. As we turned to leave him, our Fuzzey again showed

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up, running swiftly and bringing with him the telegraph wire we had passed in darkness the night before. Needless to say it acted perfectly, and in a few minutes we had three arial instead of two lashed on the camels.

They are pretty beasts, both male and female bearing horns, not unlike those of the springbuck, though heavier. The method of hunting is nearly always the same, and, except as an excuse for an outing or when in want of meat, there is no great sport in their pursuit.

Before Christmas they had entirely disappeared from the immediate vicinity of Suakin, and I presume they migrate considerable distances in quest of grazing. They are not the least shy so long as there is plenty of grass, and I have frequently seen arial and flocks of sheep and goats and camels practically side by side, which doubtless accounts for the ease with which one can approach them. I understand that they are to be met with in large numbers along the banks of the Atbara, and even occasionally on the Nile, but I do not think they have been bagged during the past year on either of those rivers. Not because they were not there, but for the reason that sportsmen in those parts have had more serious shooting to do.

WILLIAM SITWELL.

ADDRA GAZELLE (*Gazella ruficollis*)

DONGOLA NAME, *Addra*; ARAB NAME, *Ariel*

This is one of the largest of the gazelles, and is found in the Soudan regions—Kordofan, Dongola, and Sennaar. It is a striking-looking animal, mainly white as to its body-colouring, the only rufous-fawn tint being apparent on the neck, which is strongly rufous, and the upper part of the back, about as far as the middle. There is a faint trace of colouring upon the front of the face and towards the rump. A tinge of rufous shows also upon the front of the fore-legs. The horns are hooked upwards and forwards. A pair in the Natural History Museum measure

12½ inches over the curve. This fine gazelle stands about 3 feet at the withers. It is a true denizen of the North African deserts and is but little known to European hunters.

DAMA GAZELLE—WESTERN RACE (*Gazella dama typica*)

Kongko-tong OF THE MANDINGOS

The dama gazelle is another of the larger gazelles, the others being the addra and the mhorh. Its habitat lies in West Africa, in Senegal and Gambia. The body-colouring is rufous-fawn, as are the outer parts of the legs. The rump, belly, and insides of legs are white, the rufous of the outer parts of the hind-legs being separated from the body-colour by the junction of the white markings of the belly and rump. The face is creamy white with dark check stripes. The horns measure as much as 12½ inches over the curve. This fine gazelle stands about 3 feet in height. It is practically unknown to European sportsmen.

DAMA GAZELLE—NORTHERN RACE (*Gazella dama mhorh*)

MOROCCO NATIVE NAME, *Mhorh* OR *Mohr*

The mhorh is apparently only a slightly variant local form of the dama of Senegambia. It is of about the same height; the horns are almost identical. This very handsome gazelle is distinguished from *G. dama* by one feature, namely, that the rufous body-colouring, instead of being cut off from the same colouring upon the hind-legs, runs down without interruption from the quarters. The tail, rump, and belly are, however, pure white, as in *typica*. The mhorh's habitat lies in the desert portions of Morocco, chiefly in the south-west. It is a rare and little-known gazelle.

H. A. BRYDEN.

THE DIBATAG

Genus AMMODORCAS

The antelope locally known as the dibatag, and by many sportsmen as Clarke's gazelle (*A. clarkei*), agrees with the true gazelles in general characters, and especially in the face-markings, but differs markedly in the form of the horns, which curve forwards, somewhat in the manner of those of the common reedbuck, and have long, smooth points. The neck is somewhat elongated, and the tail relatively long and thin. The females are hornless.

DIBATAG OR CLARKE'S GAZELLE (*Ammodorcas clarkei*)

FOUND IN SOMALILAND, EAST AFRICA

NATIVE NAME, *Debotag*, *Dibatag*, OR *Diptag*

The debotag is a very graceful antelope, with glossy coat of a purplish-gray colour, making these animals rather hard to see, as it matches the surrounding country. The head has gazelle-like markings, with white round the eyes and a white line to the muzzle. The inner parts of the ears, chin, belly, and rump are also white.

Weight of adult males (less loss of blood), 65 to 70 lbs.; females (less loss of blood), 50 to 62 lbs.; the latter large and fat. Height of male at shoulder, 33 inches; girth close to shoulder, 26½ inches; girth round belly, 30½ inches; from nose to tip of tail, 5 feet 5 inches.

Debotag have a very long thin tail, and when running throw it up and forward. The neck is very long and arched backwards, so that the head and tail nearly meet.

Horns evenly curved upwards and forwards; average length 10 inches.

Neck long, with well-proportioned head and horns; upper lips rather long and giraffe-like, resembling Waller's gazelle. In fact, the resemblance between these two animals, in regard to face-markings, long lips, glossy coat, texture, and shape of head is remarkable. Evidently these two aberrant gazelles were designed at the same time. But Waller's, seeing such a graceful antelope in the debotag, felt ashamed of itself, and so trots off with head and neck held straight out in line with body, as if afraid of being seen. A perfect facsimile sketch of Waller's in this act is to be found in *Elephant Hunting in East Equatorial Africa*, by Arthur H. Neumann, p. 81, which is reproduced at page 375.

The females are hornless, and are like Waller's in this respect.

These gazelles live mostly among the mimosa bushes, and browse off them and a bush called jarrn. They also eat durr grass, which grows 6 to 8 feet high.

They are to be found near Bér and Burò Wells (a short march from either), Habr Gerhagis country; I believe they have never been seen any closer to the coast. The 45th degree of longitude is about their extreme western limit. They are quite numerous a few hours from Burò Wells, all through the Haud waterless plateau, down to within half a day of Arderdu Wells, Marehàn country, taking a south by east course.

They are common enough in these parts, but at the same time are very local in their distribution, and from what I saw and heard, their range extends, as it were, in a long narrow belt. They are generally met with in small families from three to five, though I have seen as many as nine. Debotag are found far from water; in fact, they can live through the greatest drought without any. The females bring forth their young in October and November; but I do not think in a dry country like Somaliland any fixed time can be set down. I have seen 30 per cent of the bucks rutting in October, and the majority of females bringing forth their young in this month. But it must be remembered that part

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of the years 1890 and 1891 were exceptionally dry. In fact, no rains fell in the interior for twelve months, and I found it the greatest difficulty to get enough water to drink, not to mention a wash. It was after this drought broke up that the bucks started rutting.

On the 17th December 1890, my Gibbs 450 single express, backed up by myself, accounted for the first debotag; strange to say, this specimen had only one horn, the other having been broken off close to the skull. Some time after this I shot another with the horn broken off in the same way.

Largest head shot by me and measured by Mr. Rowland Ward, 11 $\frac{3}{4}$ inches in length on front curve; 4 $\frac{3}{4}$ inches in circumference; 3 $\frac{5}{8}$ inches from tip to tip.

T. W. H. CLARKE.

THE GERENUK

Genus LITHOCRANIUS

The gerenuk, or Waller's gazelle (*L. walleri*), may be regarded as a still more aberrant ally of the gazelles, characterised by the almost giraffe-like elongation of the neck, and the proportionately long and slender limbs. In the bucks the horns are convex in front for a considerable portion of their length, then become concave, and finally curve forwards in a hook-like manner at their tips. Important structural differences are also displayed in the skull, which is remarkable for its solid nature, as well as for its shallowness and straightness, and the comparatively small size of the cheek-teeth. The females are hornless.

GERENUK OR WALLER'S GAZELLE (*Lithocranius walleri*)

SOMALI NAME, *Gerenuk*; DANAKIL NAME, *Gudan Godu*.

Of all the antelopes inhabiting North-Eastern Africa, save the dik-diks, especially in Somaliland from the sea to the river Shebeyeleh, this

species is the most numerous and most frequently met with. In appearance it is the most bizarre and peculiar of all gazelles, the only one approaching it in this respect being Clarke's gazelle (*Ammodorcas clarkei*), found south of the Haud in Ogaden.

Waller's gazelle has a very long neck, large eyes, lengthened muzzle, with depressed nostrils and upper lips, and with a general shape of the face not unlike that of a giraffe. The skull is very wide between the eyes, and rapidly contracts to the nose, causing the head to appear, when viewed from the front, in shape like a wedge. The body is moderately long and narrow, and is mounted upon long, very slender legs, and terminates in a short, slender, most insignificant tail. The hind part of the skull is greatly extended, so that the horns are nearly midway between the tip of the nose and the back of the head. In front of the eyes, filling up the orbital vacuity, is a conspicuous prominence with a central aperture, from which exudes a black secretion that stains everything it touches, in the same way that ink does. Neither the skin, when removed from the animal, nor the skull, affords any idea of the size of this singular prominence—in fact, there is a cavity in the skull where it is situated, and artists who have attempted to reproduce this species either in a drawing or by a model have failed entirely to present the animal as it appears in life. The skin in front of the eye has usually been laid perfectly flat, and coloured *white*. The only other animals that I have met with which possess this prominence are the dik-diks, and these, as regards their respective size, have it to an even larger extent than Waller's gazelle. The face and expression of a dik-dik is even more extraordinary and unusual than are those of the present species.

The gerenuk, as the natives call this gazelle, is not a graceful animal, as may be imagined, either in figure or in its movements. It walks along in a slouching kind of way, as though it were loose about the joints, and when startled drops its head below the bushes and on a line with its body

and sneaks away in a very different manner from the gallant bounding spring with which its near relative, Clarke's gazelle, or the dibatag, removes itself from the object of its fears. It goes usually in small troops of from three to ten individuals, and is generally found on stony ground much broken up into ravines and gullies, and covered more or less densely with trees, bushes, and various species of aloes bristling with thorns.

The gerenuk is a browsing animal, and is not infrequently met with in localities partly, or so wholly barren, that grass is entirely absent. In such localities it feeds entirely upon the leaves of such trees as it can readily reach ; it has the curious habit of supporting itself against the trunk by its fore-feet, and so partly climbs up, and by means of its long neck is enabled to reach leaves that are a considerable distance from the ground, say 6 or 7 feet. It is the only ruminant I know that is given to climbing trees.

Like all antelopes, this species is possessed of great curiosity, a failing that is often fatal to its safety ; whenever it sees an unusual object, as a hunter, for instance, it will stand absolutely motionless and gaze steadily, sometimes for several minutes. If it sees no movement in the object of its suspicions, it will commence quietly to feed or walk slowly along in its usual careless way. These moments, when he is being so closely scrutinised, are very trying to the hunter, who is obliged to remain absolutely rigid, no matter what his position may be, until the gerenuk is satisfied there is no danger ; otherwise, if the slightest motion is detected, the head is dropped behind the bush and the animal sneaks away. As a rule it does not go very far, and I never saw a gerenuk that I could not have eventually secured if I determined to have him. It was only the exercise of a little time and patience, and an approach to a fair shooting distance could certainly be gained.

I consider the gerenuk a rather stupid creature, and it does not seem to possess the wariness, watchfulness, and general ability to protect itself from danger which are the common attributes of other species of antelopes and

gazelles. It seems to think if it can only hide behind the bushes that it is not necessary to remove itself very far from threatened danger.

The meat is poor, and is, like the flesh of all other game animals in East Africa, without a particle of fat and consequently dry and tasteless. Only a few of the natives will eat it, as they consider it looks too much like camel, with its depressed nostrils and large eyes, and they believe that if they eat it, a sickness of some kind will carry off their camels; to this lucky superstition the gerenuk owes an immunity from native persecution, at least from all save the Midgans, for these born hunters, and, so far as the Somalis are concerned, social outcasts, eat almost everything they kill.

The males of the Waller's gazelle carry handsome lyrate horns, the longest measuring something over 14 inches along the curve.¹ The horns are annulated, sometimes nearly to the tips, these pointing forward and slightly inward. The females are without horns.

The gerenuk is never seen, so far as my observation goes, on the treeless plains, such as those on the Haud, Morar prairie and the like, but resorts to hillsides and summits, these often barren, but having valleys between covered with thick thorn forests. It may be that when seen on such open places, the animals were merely passing from one valley to another.

The usual gait of this gazelle is a slouching trot, with the head and neck carried very low and on a level with the body. When really frightened, it gallops with considerable speed, stopping, however, at intervals to look back at the object of its alarm; if at such times the hunter is concealed, the gerenuk soon forgets its fears and commences to feed or resume its slow careless walk.

Certain individuals of this species, of both sexes, have on either side of the face a white stripe running from the eye often to the end of the nose,

¹ The finest recorded pair of horns measure 17 inches. These were procured by the Duke of Orleans from Somaliland.—Ed.

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resembling very much the markings of Clarke's gazelle, *Ammodorcas clarkei*. This was particularly the case with animals shot south of Togo plain, and it was seldom that one was obtained there without this distinguishing character. I was impressed with this peculiarity and was inclined to regard it as perhaps of some specific value, and should certainly have so deemed it, had I not found occasionally on my return individuals in the country north of Togo possessing a similar stripe, but of less extent and not so clearly defined. When plainly exhibited, it gives the head of the gerenuk a very close resemblance to that of Clarke's gazelle, as both are similarly shaped, very narrow, and pointed. Taking the extremes of the two styles, the strongly-marked white stripe and its total absence, one would not unnaturally imagine that there were two well-defined races, if not species, of Waller's gazelle. Take it all in all, the gerenuk is a fine creature, graceful in form if not in movement, and has a peculiar structure of face, and unusual expression, which make it a rather unique species among the members of the family to which it belongs. The male gerenuk stands about 4 feet 6 inches high to the top of the head, a considerable portion of which is due to the long neck.¹

D. G. ELLIOT.

IN BRITISH EAST AFRICA

NDOROBO NAME, *Ligu*

This very strange-looking beast has been rather aptly called the "giraffe antelope" by Von Höhnelt; for in fact its exaggerated neck and stilty legs give it very much the appearance of a miniature giraffe. Indeed, in the hazy perspective of the equatorial desert, where the quivering atmosphere tends to confuse distances, one may, at the first glimpse of one of these curious gazelles, seen standing stretched to its full height, mistake it for the moment for its giant prototype seen at a greater distance.

¹ A full-grown male of this gazelle stands at the withers about 3 feet 3 inches.—Ed.

In proportion to its height and length of neck it has a very small body. The only one of which I noted the dimensions was a young male (but apparently mature) killed near Laiju, which I carefully measured on the spot. The measurements were as follows :—

Height at shoulder, 36 inches ; length from point of shoulder to root of tail, 28 inches ; tail, 9 inches ; neck, from point of shoulder to base of horn, 22 inches. This was, I should say, a small specimen even



FIG. 33.—Waller's Gazelle (*Litocranius walleri*).

for East Central Africa ; but they must, I think, run much smaller in this, the southern part of their range, than in Somaliland, judging by what one hears of the size to which the species attains in that country.

Their general colour is a dull red of different shades. The male alone has horns.

This gazelle is a desert-loving animal ; that is to say, the East African desert, not the conventional one—a sea of bare sand—but arid, sparsely grassed tracts covered with more or less open scrub, or dry plains with scattered bushes. It is not found in continuous thick bush, although, as

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pointed out by Mr. F. J. Jackson, it will sometimes retreat into a patch when alarmed, nor in country where the soil is fertile or the climate moist and the vegetation in consequence rank, but delights in barren, rather open scrub, where the hard red soil is devoid of undergrowth, and great patches are bare even of grass, and in sandy or gravelly wastes sprinkled with stunted thorn bushes. In such situations it may be seen in small parties browsing on the leaves of these thorny shrubs. As might be inferred from its build, it feeds solely on leaves ; and, not satisfied with the advantage which its immensely long neck and lanky legs afford, it even stands on its hind-legs when reaching after some tempting morsel, its fore-feet resting on a branch after the manner of a goat, and is thus enabled by stretching up its neck to reach to a wonderful height.

I believe this creature to be quite independent of water, and it may be seen in the driest parts of the country far from any possible drinking-place. It seems almost incredible that it should be able to derive sufficient moisture for the needs of its system from the sapless leafage of the scraggy desert shrubs. But it appears proof against the burning dry heat, and may be seen contentedly browsing on the withered foliage of the shadeless dwarf trees and bushes in the fierce glare of mid-day, when the very look of the baked ground is enough to make one thirsty.

In describing the peculiar gait of this antelope in *Elephant Hunting in East Equatorial Africa* I wrote : "The head is lowered and the long neck stretched out straight in front, and these, with its lanky legs and slender body, give the animal a very curious appearance as it starts off at a quick trot." It is a very wary beast and rarely offers an easy shot. The meat of the doe is tender and well flavoured. Jackson describes the note of alarm as "a low short 'buzz,'". This cry seems to come through the nose. I do not remember to have noticed it make any other sound.

I am unable to give any very definite idea of the limits of its range. It has been recorded from the neighbourhood of Kilimanjaro, but whether it

is found any farther south I am not certain. Except rarely on the Taru desert, it is not, so far as I am aware, met with anywhere on the road to Uganda; but in the barren scrub near the Sabaki I have seen it once or twice, and when once the Upper Tana is crossed it is common through all the arid country northwards as far as the north end of Lake Rudolf, and in some parts on the east coast of that lake is more numerous than I have seen it anywhere else.

It does not commonly mix with other antelopes, its habits being so different. The only evidence I have as to its breeding time is the fact that I came upon a quite freshly-born fawn in the month of December.

A. H. NEUMANN.

THE BEIRA

Genus DORCOTRAGUS

Although approximating in external appearance to the dik-diks, the little Somali beira (*D. megalotis*) is considered to be probably a more or less distant cousin of the gazelles and their allies, from all of which it differs by the short and perfectly straight horns of the males.

THE BEIRA (*Dorcotragus megalotis*)

Beira OR *Baira* OF THE SOMALIS

The beira is something between the klipspringer and the oribi. In general shape, habits, and habitat it closely resembles the former. Both are found living in the hills, and have very much the same habit of bounding about the rocks like an indiarubber ball; but the shape of the feet is quite different, and the horns, too, are easily distinguishable. The beira's colour is a peculiar shade of light slate-blue—what we call in

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French *gorge de pigeon*—with the under parts nearly white, while on the flanks is to be noticed the peculiar and well-marked dark line of the gazelles. The effect of the general colouring is light, and in this respect this antelope is not very unlike the Abyssinian oribi. Although the size of the beira resembles both of the two above-mentioned species, no mistake can be made between them. The chief differences between the beira and the klipspringer are :—General colour much lighter ; hair quite like gazelle's hair, instead of the peculiarly brittle coat of the klipspringer ; ears very broad and big ; feet like the feet of other hill antelopes ; tail very short ; horns not so straight, and inclining more backwards. From the Abyssinian oribi the chief points of difference are :—The colour and gazelle-like marking on ribs and flanks ; the oribi has a very curved outline of nose, the beira is rather turned up ; the ears are bigger in the beira, the horns of the oribi slope backwards more than in the beira ; the feet of the oribi are shaped like the feet of antelopes living in the plains, instead of being shaped rather like a chamois' feet ; while the beira lacks beneath the eyes the extraordinarily large glands of the oribi. The habits and habitat of both animals are quite different.

The beira is a hill buck, dwelling in the very hot and dried-up hills of Somaliland. Its chief food is, I think, dwarf mimosa leaves and the short and dry grass growing between the stones. I found these antelopes about eighty miles inland, in the very steep and desert hills of French Somaliland, and only there. They were about 2500 or 3000 feet above the sea, and appeared to enjoy big rocks and difficult places like chamois in the Alps. They are good climbers, and I do not know of any other game more difficult to locate ; their colour matches so exactly with the ground that, when motionless, it is almost impossible to see them. I do not think they mind at all the want of water, as they never go down to the plains ; in the hills where I saw them there was absolutely no water, except for a very little dew on the tops of the hills, when the wind blowing from the sea

was carrying down clouds along the rocks. Altogether this is a very hard kind of game to bag; one has to climb in fearfully hot places, over steep rocks, without any water, and the animals are very difficult to see, rather shy, and, as they are so small, require very straight shooting.

When I came across beira it was quite unexpectedly. I knew the name of the buck from Major Swayne's book, but was not aware of any in the vicinity. I had been after greater koodoo the whole morning, and



FIG. 34.—Head of Beira Antelope. Shot by Lord Delamere.

finally had seen from the top of a high rocky spur a big one going miles away. I was sitting close by a Somali shepherd, who was tending some goats. He said to me, "You like shooting a beira?" and took me to the end of the spur, where he pointed downwards. I made out under some leafless bushes about 80 yards away the faint outline of two beiras. They were standing, and I fired and broke the fore-leg of the male. Both went across a ravine, and at about 120 yards' distance, down came the buck with a .303 bullet through the head. Finding there were some of these antelope about in these hills, I made up my mind to go and sleep on

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the top of a rock about 3000 feet high, where I might have a good view of all the valleys. We reached the place about three-quarters of an hour before sunset, and were just preparing a place for sleeping in a cleft of rock, when a gun-bearer of mine, Abdallah, one of the best men I know for spotting game, came up in a state of frightful excitement, saying there was a herd of beiras. Running on to some rocks, I just saw two of them disappearing at full gallop among some big slabs about 600 feet high.

Heading them as best I could, I got to the top of a protruding rock, to see, about 200 yards away, six beiras in single file in the middle of the slabs. Resting my rifle comfortably, I opened fire, and got three in five shots. It was just light enough to shoot, and as the distance was too great to make out the males, I meant to kill as many as possible. They were rolling down the slabs, and, not knowing where the shots were coming from, kept for a while bounding about the rocks instead of going away. A wounded one was uttering a sort of whistle. Then one of the gun-bearers signalled to me to come on the ridge above, and there, about 70 yards off, were the three last beiras. I shot one dead, missed two shots at another, and got him with a third, and the only one left went off before I had time to shoot again. All this happened in a very few minutes. I had two Lee-Metford repeating sporting rifles, and made very quick shooting.

It was pitch dark when all the game was collected near the place where we spent the night. Five beiras is not a common sight, and I thought rightly that I had had a great piece of luck. Skinning the game and preparing the trophies took until the middle of the night. Three times we heard the call of a beira coming near the very place where we were roasting one of these antelopes for food—a sort of whistle, heard a long way off; but shooting was out of the question, as the night was dark. I had obtained three males and two females. The horns of the male, when old, are black, smooth at the end, and very hard and sharp.¹ The horns of the

¹ Good specimens measure close on 5 inches in length.—Ed.

FIELD
MUSEUM



PLATE XI

1. Gemsbuck Head.

2. Beisa Head.

3. Fringe-eared Beisa Head.

4. Addax Head and Hoof.

young ones shot were rather gray, much thicker, and far less hard and sharp than those of the old one. They had no wrinkles at the base, but the old one had some. They bend slightly inwards and forwards. The females are hornless and the meat is quite good. I never saw any more beira.

VICOMTE EDMOND DE PONCINS.

THE GEMSBUCK GROUP

Genus ORYX

A very distinct sub-family of large-sized antelopes, the *Hippotraginæ*, is represented typically by the sable antelope and its allies, but also includes the gemsbuck group and the addax. Both sexes are furnished with horns, which are long, heavily ridged, situated over the eyes, and either spiral, straight, or sabre-like in form; those of the females being in some cases longer than those of the bucks, although more slender. The muzzle is hairy, face-glands are wanting, and the tail is comparatively long, and either tufted at the tip or long-haired for the greater part of its length. From those of all other antelopes the upper cheek-teeth are distinguished by their tall and squared crowns, which are almost precisely similar to those of the oxen. In the skull there are neither depressions for face-glands, nor pits in the forehead, while the unossified spaces in the neighbourhood of the nose-bones are minute. The sub-family is confined to Africa, Arabia, Syria, and perhaps some of the adjacent countries.

The leading features distinguishing the members of the gemsbuck group from the other representatives of the sub-family are the straight or sabre-shaped cylindrical horns, the long and more or less bushy tail, the slight development of the mane on the neck, and the smooth or single-tufted throat; the horns either sloping continuously upwards almost in the

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plane of the face, or starting in this plane and then curving backwards from it. The African species may be arranged as follows :—

A. Horns straight, general colour grayish-brown, with blackish markings on the face and limbs.

1. Gemsbuck (*Oryx gazella*).
2. The Beisa (*Oryx beisa*).
3. Fringe-eared Beisa (*Oryx callotis*).

B. Horns scimitar-shaped, general colour whitish, with the neck chestnut, and markings of the same colour on the face and limbs.

4. White Oryx (*Oryx leucoryx*).

THE GEMSBUCK (*Oryx gazella*)

Gemsbok OF CAPE DUTCH ; *Kukama* OF BECHUANAS AND BAKALAHARI ;
Ko OF MASARWA BUSHMEN

The gemsbuck, or Cape oryx, one of the handsomest and most remarkable of the large antelopes of Africa, is a desert-loving species, confined mainly to the south-west portion of the continent.

In height, a representative male specimen of this antelope will stand 4 feet at the withers. The body is strong and robust ; the legs are somewhat short if compared with those of the larger antelopes. In colour the gemsbuck is of a warm gray ; the breast, belly, and lower parts of the legs being pure white. Among the most remarkable features of this antelope are the eccentric and very handsome dark brown—almost black—markings, and the long, spear-like horns, by which the animal may be at once singled out a long way off in the veldt. These dark markings appear on the white head almost in the form of a very ample headstall. They are found upon the upper parts of the fore-legs, continuing right along the flank, and thence descending upon the outer part of the hind-legs nearly to

the hocks. A strong brown-black list runs also from the nape of the neck to the tail, which is black and terminates in a long sweeping tassel almost touching the ground. A dark reversed mane adorns the strong and thick neck. The calves of the gemsbuck are, when quite young, in colour of a reddish-cream; as they increase in size they grow paler. They are sometimes taken young and tamed, but have the reputation of being somewhat fierce and treacherous. The splendid, spear-like horns of the gemsbuck have always been much sought after in South Africa. They are annulated for rather more than a third of their length, and thence run smooth and round to a sharp point. Those of the male are more robust than the females, but measure somewhat less in length. The horns of a good cow gemsbuck are, indeed, to be numbered among the finest trophies that the hunter may hope to secure in Africa. They are long, sweeping, nearly straight, beautifully balanced, and carried by the noble beast that bears them in an almost consciously proud manner. The best recorded pair of cow gemsbuck horns, a pair shot by the late Mr. J. S. Jameson, measured only half an inch less than 4 feet in length. A good representative head will run to about 38 or 40 inches.

The former habitat of the gemsbuck was, even in the days of its greatest abundance, limited mainly to the more arid regions of South-West Africa. Until the time of Gordon-Cumming (1843), this antelope was to be found pretty plentifully on the northern karroos of Cape Colony. Somewhat before that date it was found yet farther south, on the Great Karroo itself, in the very heart of the Colony. All through the Kalahari, in Great Namaqualand, Damaraland, the more desert parts of Bechuana-land, in the western portion of Matabeleland as far as the Ramokwebani River, from thence westward as far as the Mababi veldt—towards Lake Ngami—along the Botletli River, and northward through Khama's country, well up towards the Zambesi, the range of the gemsbuck may be said to have once extended. At the present time it is still to be found

sparingly in most of these localities, but it is to be noted that in the Cape Colony it has been driven for years by the tide of civilisation more and more north-westward, until at the present time it is only to be found, south of the Orange River, in the dry waterless wastes of the region known as Bushmanland. Here, happily, it is still occasionally to be found in small troops, and, thanks to the parched and desert character of this little-known region, it may be hoped that the Cape Colony may for some years yet be able to boast the living presence of the gemsbuck, one of the two supporters—the other being the white-tailed gnu—of its coat of arms. In the heart of the Kalahari the gemsbuck is one of the commonest of the game animals, and ranges freely in large troops in those desert regions, where, for great part of the year, no surface water is to be found. The gemsbuck is, indeed, absolutely independent of water. Despite this fact, strangely enough, and notwithstanding the parched nature of its habitat, it manages to put on flesh in an amazing manner. I have seen gemsbuck in the heart of the Northern Kalahari, during the driest period of the South African winter (July), fat and in high condition. This antelope, although as a rule a shy and suspicious animal, seems in these little-frequented wastes of the North Kalahari to relax something of its ordinary wariness. I have, with a hunting friend, Mr. W. Dove, passed an old bull in a glade of the bush at a distance of 70 yards. The noble beast, which was in magnificent condition, simply stood and stared at us, and not until we spurred our horses and moved on did it take the trouble to trot leisurely away. Our fingers itched to be on the trigger, but we were close upon a troop of giraffe, which we had been following all the morning, and held our hands. As a rule the gemsbuck runs in troops of from a dozen to twenty. Occasionally smaller troops are met with, and yet more rarely the herd will reach five-and-twenty or thirty in number. As with other gregarious game animals, the old and useless bulls are driven from the troop and

are then found wandering alone in complete solitude. On several occasions the writer has encountered these old solitaires, roaming apart in the wilds of the Northern Kalahari. The flesh of the gemsbuck is very good, and its skin, which is remarkably tough and strong, is in great demand for making *riems*—raw-hide thongs—and whip-lashes.

Gemsbuck frequent by preference open plains or thinly-bushed country, but, where they have been persecuted, they are inclined to seek shelter in open forest and the more bushy country. When thin and in low condition these animals exhibit plenty of speed and bottom, and will then gallop away from a good horse in a long tail-on-end chase. Gordon-Cumming, who hunted gemsbuck very vigorously in Cape Colony during his earlier years in South Africa, gave a somewhat exaggerated account of their running powers. But Gordon-Cumming was a fourteen-stone man and not perhaps quite such a good horseman as he was a rifle-shot. At all events, a good many modern hunters—Mr. Baldwin and Mr. Selous among the number—have, when well mounted, proved themselves capable of galloping down even this fleet and enduring antelope. The gemsbuck is a brave and determined beast of chase and will defend itself vigorously when wounded and set up by dogs, and the hunter should approach the animal, when at bay, with much caution. Many a good dog has been slain by the sharp and formidable horns of this antelope. When attacked by carnivora, or by dogs, the gemsbuck often throws itself down, and, offering its horns most deftly to every point of attack, is enabled for a long time to keep at bay—sometimes even to drive off—its assailants.

For the last hundred and fifty years or more a legend has been current in South Africa that this antelope will boldly face even the lion itself, and that the bodies of the two animals—the lion impaled on the sharp horns of the gemsbuck—have been found rotting in the veld together. I have been assured by reliable colonists and hunters, English, Afrikander, Dutch, and

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native, that this is really the case, and I am inclined to believe that this very persistent legend possesses elements of truth. It is certain that the gemsbuck is, with its near allies, the sable and roan antelopes, among the pluckiest and fiercest of all the large antelopes. It is also, I think, incontestable that among Bushmen and other African natives, people living in the haunts of the gemsbuck and likely to be familiar with its habits, the lion has the reputation of being excessively chary of attacking one of these antelopes. The gemsbuck has also often been credited with being the prototype of the unicorn of heraldry. Upon the whole, it is more probable, I am inclined to think, that its near congener, the oryx of North-East Africa (*Oryx beisa*), or the oryx of Arabia (*Oryx beatrix*), is the original of that fanciful beast. Certain it is that the figure of the unicorn found upon Persian and Egyptian monuments resembles nothing so much as the oryx with a single horn set forward instead of back. Seen in profile, the long straight horns of this animal appear as one. John of Lancaster, Duke of Bedford, bore as one of the supporters of his coat of arms the figure of an antelope, which could have been intended only for that of an oryx. It has been suggested by antiquaries that the Crusaders first introduced the emblem of the unicorn into this country. Whether they procured their figure of the oryx-unicorn from animals or North Africa or Arabia, or from Egyptian or Persian monuments, is a point that must now, I fear, rest always in doubt.

H. A. BRYDEN.

THE BEISA (*Oryx beisa*)

IN SOMALILAND

SOMALI NAME, *Beit* OR *Beida*

This oryx is one of the chief features of Somaliland, and is distributed throughout the country. It is a thick-built, bovine animal, feeding chiefly on grass, and found both in open bush and the plains. It is apparently

able to exist without water for a considerable time, if not altogether, as I have shot oryx in the middle of the Haud (the great waterless plateau) at its widest part, fully 70 miles from the nearest water. It appears to rely mainly on its very keen sight for safety.

Oryx are generally found in herds of from half a dozen to fifty at the most, chiefly composed of cows and calves. In stalking a herd it is almost impossible to distinguish the bulls from the cows; they are exactly similar in colour, though the bull has slightly thicker horns and neck. Solitary bulls are found wandering alone through the country, and are generally



FIG. 35.—Beisa (*Oryx beisa*). Photographed by Lord Delamere in East Africa.

old, heavy animals. The average length of a good bull's horn is about 33 inches, and that of a good cow 35 inches. The best bull I ever shot had horns $33\frac{5}{8}$ inches, and my best cow 37 inches.¹ Oryx are shy, wary animals, and are very hard to approach on the open plains, but when found in bush, with the wind favourable, can be stalked comparatively easily. The skin on the top of the shoulders is very thick, and is much prized by the Somalis for making into fighting shields. They say it is tougher than any other hide and will turn the sharpest spear. The rest of the skin they

¹ There is a record of a pair measuring 40 inches. See Rowland Ward's *Records of Big Game*, 1899.—Ed.

cut into a long thong, which makes a most serviceable rope for tying their loads on camels.

When oryx are in good condition the meat is excellent, but that of an oryx calf is a positive dainty. Many a time have I made a mid-day meal off slices of oryx-liver, toasted in the wood ashes, and a marrow-bone. If no matches are forthcoming, Somalis make fire by rubbing two pieces of dry stick together, of some particular wood. The Midgans hunt oryx with dogs, which bring the beast to bay, when they creep up and shoot it with poisoned arrows. They also use a camel to stalk it with. The oryx seems to be a very favourite prey of lions. I have frequently found the remains of one with the tell-tale pugs around.

I remember once, in Ogaden, when tracking a troop of eight lions through some open bush, finding that they had suddenly spread out in wide skirmishing order; as we went on we read the story by the tracks in the sand. They had been trying to stalk some feeding oryx, and eventually dashed in on them, but without success.

A wounded oryx should be approached with care; he is a vindictive beast, and full of courage, and, if not disabled, will make a determined dash at any one coming near, using his sharp horns often with fatal precision. The bulls seem to be very pugnacious, and I have shot several with only one eye. An oryx with a single horn is by no means uncommon, and I can imagine no nearer resemblance to the unicorn.

Though I have had many unsuccessful hunts after oryx, I do remember one red-letter day. I was sorely in need of meat for my large number of men at the time. I eventually saw five oryx feeding in some open mimosa bush, and after a long stalk succeeded in getting up to within 150 yards. I knocked over two right and left. The others stood again after going a short way, and I shot a third and wounded another. The remaining one stuck to his wounded comrade, and I eventually shot him too. Not a scrap of this meat was wasted, as we smoked and dried in the

sun all that was to spare. I always found that an oryx with a broken leg never went very far before lying down, whereas a broken-legged gazelle or gerenuk would go a whole day if followed.

On another occasion we were very short of flesh, and I sallied forth prepared to make anything I could "my meat." There was very little game about, but eventually we saw some oryx; it was very bad stalking ground, and as usual they were very shy. By a lucky long shot I knocked over one, which proved to be a cow, with a beautiful pair of horns, 37 inches long; but I never saw a beast in worse condition, literally skin and bone. Hungry as my men were, they would not touch the meat. The marrow bones even were not worth carrying back to camp. These were the longest horns I collected.

Riding down a wounded oryx is very exciting sport, but I never tried to finish one with a spear myself, preferring to carry a light rifle rather than risk my pony getting a prod from those javelin-like horns. I have seen these antelopes charge a mounted Somali most determinedly.

A. H. STRAKER.

IN BRITISH EAST AFRICA

SWAHILI NAME, *Chiroa*; NJEMPS NAME, *Ngosorok*; SALA OF ABYSSINIANS

To find out the exact limits of the range of any of the antelopes is at all times difficult and can only be done by those who have had a fairly long residence in the country. I think I can state with certainty that the southern range of the beisa ends at the equator, as I have twice seen a small herd in the plains of Masailand, due east of the Ravine Station, which is for all practical purposes on the equator. Farther south, I have never seen this antelope, and have not heard of any one who has done so. In the open bush country on the south-west shore of Lake Baringo it is plentiful, and I saw several herds, the largest containing about forty beasts, in September

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1896. At that time of the year everything was parched up and burnt, and there was scarcely a particle of cover excepting dry leafless "wait-a-bit" thorn bushes. The ground was as hard as a rock and strewn with the sharp-spiked berries of a creeping plant mentioned when dealing with the *O. callotis*; and, as crawling flat on one's stomach for long distances was the order of the day, I do not think in all my experience I have had really to suffer so much pain and discomfort as I did over the five head I managed to secure. Only once, with a single bull, could I get within 200 yards, whilst with the rest it was quite impossible to get nearer than 300 to 350 yards. Earlier in the year, from March to June, when



FIG. 36.—Beisa (*Oryx beisa*) standing basking in the sun after drinking at water-holes during drought. Photographed by Lord Delamere.

everything is green and affords more cover, I have no doubt that the difficulties would be far less.

The beisa is so well known—it can always be seen in the Zoo, though there they give no idea of the size of the beast in a wild state, which is nearly twice as large—that I will only give the measurements of a couple, bull and cow, killed by myself at Baringo and weighed whole on the spot.

Bull.—Total length, 7 feet 6½ inches; height at shoulder, 4 feet 2 inches; tail, 1 foot 3½ inches; weight, 458 lbs.

Cow.—Total length, 6 feet 6½ inches; height at shoulder, 4 feet; tail, 1 foot 4½ inches; weight, 380 lbs. This cow was in milk.

On the 22nd September I saw a small calf about a week old, the most ungainly little beast to look at ; but when it came to trying to catch it, it was more than a match for myself and a dozen men. Another cow I killed was, I regret to say, heavy in calf, which shows that the *O. beisa* breeds much earlier in the season than the *O. callotis*, and indeed than any other antelope in East Africa.

F. J. JACKSON.

THE FRINGE-EARED BEISA (*Oryx callotis*)

SWAHILI NAME, *Chiroa*

The "fringe-eared" oryx is not only confined to East Africa but its range is very limited. How far south it extends into German territory, beyond the fact that it is found some 15 miles down the River Ruvu below Arusha, I am unable to say ; but, in British territory, which is undoubtedly its principal habitat, it is found from the Anglo-German boundary as far north as the Mto Kiboko, beyond which, up to the present, it has not been identified. It is fairly plentiful in the Galla country, south of the Tana River, and I have seen it within a mile of the sea at Merereni during the rainy season in May 1885. Curious to say, it has never been found anywhere on the Athi plains, though, farther south, it is fairly well distributed from Kilimanjaro, its headquarters, as far east as the open country between Maungu and the River Voi, where I saw several fair-sized herds in 1888. In the Kilimanjaro district it used to be very plentiful, in fact one of the commonest beasts, on the eastern shores of Lake Jipi, and in the country lying between the north-east of the mountain and the Kiyulu hills ; and, as I never heard of it having suffered from the ravages of rinderpest, it is no doubt still plentiful in those places and others suitable to its habits.

It is a shy, wary beast, and goes about in herds of six or eight up to thirty or more. A single bull oryx, when it has been driven out of the herd by a younger and stronger beast, is often seen with a herd of *Gazella*

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granti, with which it associates perhaps for the sake of safety as well as companionship. I have also seen them entirely by themselves. They affect open bush and sparsely-timbered country more than the plains, and are found in the driest and most arid places at very long distances from water. When found in open bush and disturbed, they take to the open for safety, but when wounded, like most other game, they make for the bush. In the Arusha wa Chini country, south of Kilimanjaro, I once wounded a single bull oryx upon the plain at the foot of the Sogonoi hills, into which it retreated—a course I should imagine very unusual for so essentially a beast of the open—and in spite of following it for three hours up and down the rough stony hillsides, I had eventually to give it up, being then dead beat and unable to go farther. They are grass feeders and thrive well, being fat and sleek during the hottest and driest time of the year, when there is not a vestige of anything green. It is a curious fact that in the country most frequented by the oryx, both at Kilimanjaro and near Lake Baringo (where the *O. beisa* is found), there grows a curious low creeping plant which throws out in all directions tendrils about 18 inches long, covered with a very hard, sharp, thorny berry, which always has a spike sticking upwards. An oryx is at all times fairly difficult to stalk, but these spiky berries render it much more tedious, not to say painful, when on hands and knees, or crawling on one's stomach, as even leather, which will turn most thorns, affords little protection.

I can give no dimensions, but am inclined to think, after a lapse of ten years since I saw the *O. callotis*, that it is a somewhat smaller beast than the *O. beisa*. The heads are certainly inferior in length of horn. In colour they are like the common gray donkey, and at a distance look very like the "punda," with which every one in East Africa is familiar. One of the most striking things about a bull oryx is the extraordinary thickness of the skin of the neck and front of the shoulders, no doubt a provision of nature to protect them during the fights that take place during the rutting

season. Sportsmen should remember to shave the skin down to at least half its thickness on reaching camp, not only to save trouble to the taxidermist at home, but to ensure quicker drying and thus enable one to pack it into a smaller space. What is really more important, if this is done, the sportsman can examine the skin from time to time, a thing he will otherwise not be able to do properly when it is dry, as it becomes



FIG. 37.—Beisa (*Oryx beisa*) coming to drink at water-holes during drought.
Photographed by Lord Delamere.

as hard and stiff as a board. A cow's neck skin is no thicker than a hartebeest's.

The young ones are dropped between January and March, and are curious ungainly little creatures until about a year to eighteen months old. The long tufted ears, which are the most marked distinguishing features of this oryx, are carried at a much lower angle than in the *O. beisa*, and very closely resemble—on a small scale—those of the roan antelope.

F. J. JACKSON.

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THE WHITE ORYX (*Oryx leucoryx*)

This oryx, of which very little is known to hunters, is a denizen of the wide deserts of North Africa, its best-known habitats being Sennaar, Kordofan, the wilder portions of Nubia and the Soudan, and parts of the Sahara. In size it is much on a par with the beisa, that is, about 4 feet or a trifle less at the shoulder. The body-colouring is whitish with a tinge of rufous. The rufous colouring is noticeable chiefly on the neck, shoulders, the under parts, and the upper portions of the limbs. Two dark, brownish markings are found on the front of the face, and others form eye-stripes and streaks running from the horns to the eyes. The horns are very remarkable, long, sweeping, tapering greatly to the sharp, spear-like points, and with a very strong backward curve. They are annulated for about a third of their length. The longest recorded pair of horns, which measure $39\frac{5}{8}$ inches over the curve, are in the possession of the British Museum.

H. A. BRYDEN.

THE ADDAX

Genus ADDAX

The single representative of this genus (*A. nasomaculatus*) is a moderately large antelope, easily recognised by the spirally-twisted horns, the heavy mane covering the neck, throat, and withers, the tuft of hair on the forehead, and the comparative shortness of the tail, which is tufted only at the tip.

THE ADDAX (*Addax nasomaculatus*)

Styled by the Arabs of North Africa *Bakr-al-Wahsh*, or "ox of the desert"; but has probably other local names in its range across the Sahara Desert.

The addax antelope, which is a member of the oryine group, is a much more ungainly-looking animal than its comely relatives the oryxes and hippotragines, but it is little else than the development of a primitive type of oryx which has acquired a spiral twist to its horns. Both sexes are horned. The horns of the female are nearly equally long with those of the male, but are much more slender and only exhibit one and a half turns, whereas horns of the adult male give two and a half turns, and in some rare cases even three. The horns are marked with regular annulations, less developed than in the roan and sable antelopes, but more so than in the oryxes. A fine pair of male horns in my possession measure 28 inches in a straight line from base to tip, and 31 inches measured along the curve. A large pair of female horns, also obtained by me from the south of Tunis, measure $27\frac{1}{2}$ inches from base to tip in a straight line, and $30\frac{1}{2}$ inches along the curve. The adult male addax is from 3 feet to 3 feet 6 inches high at the shoulder, the females being slightly smaller. The male develops a very thick growth of hair on the shoulders, neck, and throat, a growth which on the lower part of the neck becomes a long mane. Across the upper part of the bridge of the nose there is a well-marked white chevron, which develops on either side of the face into a white tuft bordering the tear-gland. There is a large white spot on the outside of each ear, and the lips are white. The general colour of the body, where the hair is short, is cream-colour or grayish-white, but the thickly-haired fore-quarters and neck are dark brown. A fringe of hair which grows over the body is brownish-black, and the ridge of the nose is pale brown. The tail is fairly long, and tufted with dark brown hair.

The habitat of the addax would seem to be in the main the Sahara Desert, right across Africa from the Atlantic to the Red Sea. I have seen it stated that the animal is also found in Central Africa, but I cannot say whether there is any accuracy in this statement. It does not seem to penetrate the Soudan beyond the true limits of the desert,

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and at the present day does not extend its range in North Africa into the well-watered forest country outside the Sahara Desert. It is still found in the extreme south of Tunis, and in the interior of Tripoli, Algeria, and Morocco; and specimens are occasionally obtained from the districts north of the Senegal River. In former days, judging from the Roman mosaics and frescoes found in North Africa, the addax was a common animal in what would be now called Central and Southern Tunisia.

In North Africa the Arabs pursue the addax on horseback with fleet dogs—usually of the Slugi or stout greyhound breed. Owing to its preference for inaccessible desert tracts, this animal is very rarely shot by Europeans. In nearly all cases it will be found, when Europeans bring home the easily purchased trophies of the addax, that they have not shot them themselves, but have employed Arabs to do so, as in the pursuit of this animal one runs the risk of losing oneself in those dangerous tracts of the Sahara where the sand is incessantly shifting, districts which are absolutely without water.

H. H. JOHNSTON.

THE SABLE ANTELOPE GROUP

Genus HIPPOTRAGUS

This genus includes the typical and at the same time the largest members of the sub-family, which are characterised by the stout and heavily ridged horns rising at an obtuse angle to the plane of the face, and then sweeping backwards in a scimitar-like curve. A well-developed and often upright mane clothes the neck, the throat is more or less distinctly maned; the moderate tail is terminally tufted, and the pointed ears are characterised by their excessive size.

The following three existing species, the third of which is now exterminated, may be recognised, viz. :—

1. The Sable Antelope (*Hippotragus niger*).
2. The Roan „ („ *equinus*).
3. The Blaauwbok („ *leucophæus*).

The second of these is divided into several ill-defined local races.

THE SABLE ANTELOPE (*Hippotragus niger*)

IN SOUTH AND SOUTH CENTRAL AFRICA

Zwart Wit Pens OF THE BOERS; *Potoquane* OF SOUTHERN BECHUANAS; *Qualata inchu* OF BAMANGWATO AND MAKOLOLO; *Umtjiele* OF AMANDABELE; *Palapala* OF MAKALAKAS; *Impengo* OF MASUBIAS; *Ookwa* OF MAKOBAS; *Impalampala* OF SWAZIS AND ZULUS; *Solupe* OF MASARWA BUSHMEN.

This noble-looking antelope was first described by Captain, afterwards Sir Cornwallis Harris, who met with it in 1837 somewhere amongst the hilly country of the present Magaliesberg district of the Transvaal. This was not very far from the extreme south-western limit of its range, but it may be interesting to note that so recently as 1882 a few sable antelopes still survived in a district somewhat farther to the south-west than the point where the species was first met with by its discoverer. Of this fact I obtained what I considered conclusive evidence from an old Hottentot hunter whom I met in that year, and whom I had formerly known as an elephant-hunter in Matabelerland, where, of course, he had seen large numbers of sable antelopes. He informed me that a few of these animals still survived amongst the hills lying about 20 miles to the west of the village of Zeerust in the Marico division of the Transvaal, and told me that he had killed two of them during the two years he had resided in that part of the country. From this point—not very far from the head-waters

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of the Notwani River—the sable antelope appears to have once been rather sparsely distributed along both banks of the Limpopo and its upper tributaries ; in the Northern Transvaal, as far south as the borders of the high veldt, and in Khama's country, as far north as the old waggon track which used to run from Shoshong to Matabeleland. Throughout the greater part of Matabeleland, Mashunaland, Manica, the low veldt of the Eastern Transvaal, and in fact the whole of South-East Africa to the north of Swaziland and Delagoa Bay, the sable antelope is, or was until quite recently, plentiful. In the low-lying coast country between the Buzi River and the Lower Zambesi it is decidedly scarce, however, nor did I meet with it in the immediate vicinity of that river in the neighbourhood of Tete. The waggon road which leads from Tati to the junction of the Chobi River with the Zambesi, and forms the boundary between Matabeleland and Khama's country, also marks along the greater part of its length the western range of the sable antelope in this part of South Africa. These animals certainly wander somewhat west of this line, along the course of the Nata River, but although they may be met with at any of the permanent waters all along the road from Sibanani to Gazuma, and must sometimes, therefore, graze a few miles westwards of the line I have indicated above, they are unknown at any of the permanent waters in the deserts farther to the west. Along the Chobi River, however, as far as I have travelled, I have met with this antelope, though never in anything but small numbers. In the Mababi country I never saw any, nor along the Machabi River, which is an outlet of the Okavango. It may therefore be said that in Africa, south of the Zambesi, the range of the sable antelope has always been confined to the eastern half of the country, except where the species has pushed westwards along the valley of the Limpopo, and the southern bank of the Chobi River.

North of the Zambesi I have met with the sable antelope wherever I have travelled, but it always appeared to me to be rather sparingly dis-

tributed through those regions. Nowhere have I seen these beautiful animals in such numbers as in Northern Mashunaland, in which district it is by far the commonest species of antelope.

Sable antelopes are usually met with in herds of from ten to twenty individuals, and although I have probably seen many thousands of these animals in the aggregate, I never saw a herd which I judged to exceed fifty in number until 1895. In that year I met with a herd of sable antelopes near the Sewhoi-whoï River, about 100 miles to the north-east of Bulawayo, that I was able to count pretty accurately, and which I found numbered about eighty all told. No matter how large a herd of sable antelopes may be, except in very rare instances, only one full-grown bull will be found with it. At least this is my experience, which is considerable, though I have often seen the old cows in a herd, which in Mashunaland are often almost as black as the bulls, mistaken for the latter as they ran amongst the trees. It is worth noting that whilst to the south of the Zambesi the old cows often turn almost as black in colour as the adult bulls, in the herds I saw to the north of that river all the cows appeared to be dark reddish-brown, and none of them looked black. The sable antelope is in highest condition towards the end of the rainy season. The coat is then thick and glossy, and in the old bulls absolutely jet black, except for the face markings, which are pure white, as are also the belly and the insides of the thighs. At this time, too, the hair on the neck is longer and thicker than on any other part of the body, and the thick and luxuriant crest of hair which grows all along the back of the neck, falls over and hangs drooping on either side above the withers. Before the dry season is very far advanced, however, say towards the middle of June, the long hairs of the neck begin to fall out, and by September nothing is left on this part of the body but a thin covering of short brown hair, with many bare patches of naked skin amongst it. The hair over the entire body also becomes thinner, and loses its glossiness. Towards the end of

the year, when the refreshing showers of early spring have once more clothed the arid veldt with a carpet of green and succulent grass, the sable antelopes begin to get their new coats, and by the beginning of the new year are usually once more sleek and glossy.

In the upland valleys of Mashunaland I have known sable antelopes to get their new coats in October, before the end of the dry season, but this was owing to the fact that in that country a certain kind of grass sprouts from the damp soil of the higher valleys, which soon fattens all animals that feed upon it, whether wild or domestic.

The sable antelope may be said to be a forest-loving species, though it does not like dense bush. Where the country is covered with open forest, in which grassy valleys intersected with little streams of running water are numerous, as on the northern, eastern, southern and western slopes of the high plateaus of Matabeleland and Mashunaland, sable antelopes may be confidently looked for.

During the rainy season they retire from the neighbourhood of the high open plateaux into the forest-covered countries at a lower level; and although during the winter months, from July to November, they extend their range very much in search of young green grass, and may be met with on some of the highest portions of Mashunaland, they always keep to those parts of the plateau where there is a certain amount of open forest to be found, and are never encountered in the midst of wide open treeless downs, like the tsessebe and the roan antelope. Sable antelopes are sometimes found in very broken country, and are capable of climbing up and down steep rocky hillsides with the greatest apparent ease; but I do not think they can be said to be partial to hilly countries, and they certainly prefer the undulating slopes and less lofty ridges on the borders of the higher hills.

Sable antelope cows begin to drop their calves in August, but the bulk of them calve during September and October. When heavy in calf, sable

antelope cows can be easily run down on horseback, and when in pursuit of a bull, the leader of a herd, I have often seen two or three of his consorts turn out and stand looking, as the horse passed within a few yards of them, before they had run very far. A cow not thus handicapped, however, or a bull, will be found to be too fleet and enduring to be run down by the best of South African shooting ponies, except in very exceptional cases. When the calves are first born, they are of a reddish-brown colour, and the white face markings, which in later life become so conspicuous, are scarcely noticeable. When only a few days old, they can be run down and caught without much difficulty with the help of a moderately good horse, and soon learn to suck milk through a piece of rag arranged over the mouth of a bottle, and in a few days become quite tame. By nature the sable antelope is without doubt one of the boldest and fiercest of all the African antelopes, and when wounded and standing at bay, snorting with arched neck, must not be approached incautiously.

It is true a sable antelope seldom charges, not nearly so often as a roan antelope in similar circumstances, but rather stands on the defensive, ready to ward off any further attack upon itself. I have, however, upon two occasions seen a wounded sable antelope bull make a most determined charge, and chase a horse closely for a short distance; whilst I remember one of Lo Bengula's hunters being killed by one of these animals, which, having been incautiously approached when wounded, charged, and as its assailant turned to run, drove one of its long curved horns right through his body in the region of the kidneys. A sable antelope bull *when alone* can be brought to bay very quickly by dogs even when unwounded. He will either turn and stand ready to fight as soon as the dogs get near him, or else, if he is near a stream, will make for it, and stand at bay in a pool, where the water is of a sufficient depth to make it impossible for the dogs to reach him without swimming—any dog making the attempt to do so may be looked upon as a dead beast. But when a *herd* of sable antelopes is

pursued by dogs, neither the bull nor any of the cows will come to bay, though now and then one will charge out at one of the dogs, and then immediately rejoin the herd. I have seen many sable antelope bulls brought to bay by dogs, and I never saw one of these antelopes, when unwounded, lie down to fight, as they usually do when badly wounded. They use their horns with marvellous quickness and dexterity, and if, as they stand or lie at bay, an assegai is thrown at them, they often break the shaft with a sweep of their long curved horns, on the instant that the head of the weapon strikes them ; whilst if a dog seizes them anywhere about the flank or hind-quarters, he will almost certainly have a horn driven right through him before he is many seconds older. I have had many and many a good dog killed by sable antelopes, and I have known one of these animals to kill four dogs, and grievously wound four others in less than a minute. Once I saw a wild dog (*Lycan venaticus*) attack a sable antelope bull. It bit its powerful antagonist twice, but on each occasion only snapped, letting go its hold again instantly. These wild dogs run mute, and experience, which has become a hereditary instinct, has doubtless taught them how to deal with the various kinds of game on which they prey ; and when in pursuit of sable or roan antelopes, they probably endeavour to tear open the flanks of their victims by a series of snapping bites, and at length gradually expose and drag out their entrails. Before they have been much persecuted, sable antelopes are amongst the least shy of wild animals, and the bold and noble bearing of a herd of these antelopes, all standing broadside on, upon the slope of some wooded hill, gazing with curious though fearless eyes at the first mounted man who had ever invaded their haunts, could not fail to strike the least impressionable of travellers or hunters ; but such sights are possibly no longer to be seen, for I am afraid there is not a corner of Africa south of the Zambesi now left where the game has not been made wild and shy by persecution at the hands either of white men, or natives armed with the white man's weapons. The horns of a sable antelope bull are often

beautifully curved, though in this respect they vary greatly, some being much less curved than others. They are always flattened on the sides and ringed to within a few inches of the points. An average length is about 38 to 40 inches over the curve, though horns measuring 42 and 43 inches are not uncommon.

Anything over this latter length is unusually fine, and in all my experience I have not seen more than seven or eight pairs of sable antelope horns which taped over 44 inches in length. The longest pair I have ever seen in Africa was shot by a Boer in 1895 on the Sebakwe River in Mashunaland, and sold by him to a gentleman connected with some mining company in Matabeleland. I measured this remarkable pair of horns carefully, and found that the right-hand horn taped within a fraction of 48 inches and the left horn $47\frac{1}{4}$ inches. I have also seen two pairs measuring 46 inches, and three or four others that reached a length of 45 inches, but I have never shot a sable antelope myself whose horns measured much over 44 inches. The horns of sable antelope cows are rarely much curved, and, except in very exceptional cases, stand very straight up from the head compared with the horns of a bull. Pictures representing a herd of sable antelopes, amongst which there are several with strongly curved horns, are therefore not true to life, though they are common in works on South African sport. The average length of sable antelope cow horns is about 30 inches, and anything over 34 inches is very uncommon, whilst a pair that is both very long and at the same time perfectly symmetrical is an exceedingly rare trophy. I have one such head of a sable antelope cow which I shot a good many years ago in Mashunaland. The horns, which are strongly curved and perfectly symmetrical, measure $39\frac{1}{8}$ inches in length. Out of the many thousands of sable antelope cows I must have seen, I have only come across two others with similar heads. The one I might easily have shot, but did not like to do so, as I was well supplied with meat at the time. The other I

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wounded and left standing, thinking she was done for, whilst I galloped on after the bull; but when I returned to look for her she was gone, and though I followed her tracks for some distance, I never saw her again. Old sable antelope bulls, after they have been driven away from the females by younger males, nearly always live entirely alone, though I once saw four old bulls together, a most unusual sight. The horns of these old bulls are often very much worn down at the points. The male sable antelope stands as a rule about 4 feet 6 inches at the withers and is very solidly built, deep in the shoulder and powerful in the neck. The flesh of this species is, in my opinion, very inferior to that of the roan antelope; in fact, *cæteris paribus*, I prefer the meat of almost any other antelope running between the Limpopo and the Zambesi to that of the sable antelope. But this of course is a matter of taste, and luckily tastes differ.

F. C. SELOUS.

IN BRITISH EAST AFRICA

SWAHILI NAME, *Pala-hala*

The sable antelope has a very limited range in British East Africa, and is only found in the coast region between the river Voi and the Anglo-German boundary and for a distance of about 70 miles inland. It appears, however, to be fairly plentiful in the open and sparsely-timbered country to the west of the Shimba and Rabai hills, particularly in the vicinity of Adda. Here several have been killed within the last eight years, notably by Mr. Jenner, now H.M.'s Sub-Commissioner for the Jubaland Province; by Captain Tighe of the 27th Bombay Infantry, and by some of the officials of the Uganda Railway. In 1888 they were also fairly plentiful near Galu Galu, about 20 miles north-east of Rabia, but were so wild, from being constantly hunted by a small mixed colony of Wakamba and Giviarua people, that they were quite unapproachable, in spite of the country being

well adapted for stalking, as it was open and interspersed with enough small patches of bush and thorn trees to afford good cover.

Farther south in German territory the sable was not uncommon on the north bank of the River Wami in the vicinity of Kidudwi. Here the country is quite perfect from a stalker's point, being a succession of rolling hills running parallel to one another, with plenty of ant-heaps dotted about, besides being well timbered with large shady trees and quite park-like in appearance. In each valley there was a small stream, mostly dry when I was there in February 1887, fringed with bush and thorn trees. By keeping along the top of one hill an extensive view was obtained of the valley on each side and of the opposite hillsides, and it was only in a very few places that stalking was really difficult and sometimes impossible. Curious to say, however, the sable antelopes, except on one occasion, invariably chose those difficult places, and the only time I ever succeeded in getting within range of them—and I saw several small herds and made many futile attempts to get near them—was more by luck than good management. This was during a fog or thick morning mist, when I unconsciously walked quite close up to a herd of about fifteen. My luck, however, deserted me, as the bull, a grand beast, was standing behind a large tree, facing me, and also much nearer to me than the rest of the herd, which was quietly feeding, and I did not see it until I fired both barrels at the best cow I could see. On several other occasions I think I might have got within range had it not been for impala, or the ever-watchful hartebeest (*Bubalis lichtensteini*), of which there were great numbers; but this is only one of the many vexations the sportsman has to put up with in a country where game is plentiful. The head of the sable antelope is always a grand trophy, but the finest I have ever seen in East Africa cannot be compared with the heads from South Africa; on the other hand that country cannot show a gazelle like the *G. granti*, or an impala like those found near Lake Baringo.

F. J. JACKSON.

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THE ROAN ANTELOPE (*Hippotragus equinus*)

IN SOUTH AND SOUTH CENTRAL AFRICA

Bastard Gemsbok OF COLONIAL AND ORANGE FREE STATE DUTCH ;
Bastard Eland OF TRANSVAAL DUTCH ; *Klabakila* OF BASUTOS ;
Qualata OF NORTHERN BECHUANAS ; *Tai-hait-sa* OF SOUTHERN
BECHUANAS ; *Ec-taka* OF AMANDEBELE ; *Ec-pala-pala Chena* OF
MAKALAKAS ; *Impengo eetuba* OF MASUBIAS ; *Oo-ka-mooh-we* OF MAKO-
BAS ; *Mtagaisi* OF SWAZIS AND ZULUS ; *Kwar* OF MASARWA BUSHMEN.

The range of the roan antelope in Southern Africa is, or was originally, considerably more extended than that of the sable antelope ; but in no part of the country has the former animal ever been so common a species as the latter used to be and probably still is throughout the greater part of South-East Africa lying between the Limpopo and the Zambesi. I first met with the roan antelope in Griqualand West in 1871, that is to say, I saw the head and skin of a freshly-killed male of this species, brought into Campbellsdorp by a bushman in November of that year. It is possible that a few still survive in the same district, as I know that roan antelopes had not yet become extinct in Griqualand West in 1886. Travelling northwards I never met with this species either in British Bechuanaland or along the western border of the Transvaal, but I should imagine that it must once have existed throughout these regions, since, according to Sir Andrew Smith, it used to inhabit the country now known as the Orange Free State and the more northerly portion of the Cape Colony. In the southern part of the Bechuanaland Protectorate, along the Notwani River and on the Upper Limpopo, near the junction of that river with the Marico, I have both seen and shot roan antelopes ; and from there eastwards and northwards this species used to be generally distributed throughout the greater portion of South-East Africa, including the

northern and eastern portions of the Transvaal, as well as certain districts in Swaziland and Amatangaland, in all of which latter territories, however, it has now become very scarce. The roan antelope ranges farther westwards than the sable, in the country midway between the Limpopo and the Zambesi, as I have seen them on the road between Sode Gara and the Mababi Plain and also between the latter place and Goh-hah Hill.¹ I found them, too, not uncommon along both banks of the Chobi River. In the flat coast country between the mouth of the Buzi River and the

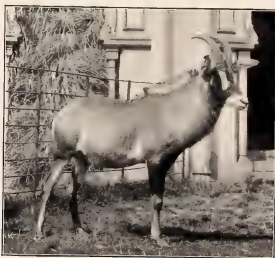


FIG. 38.—Roan Antelope (*Hippotragus equinus*). Photographed at the Cologne Zoological Gardens by the Duchess of Bedford.

Zambesi, the roan antelope is, to the best of my belief, unknown, and it is also absent from all the low-lying country on both sides of the Zambesi as far as the Victoria Falls. In fact I cannot remember to have met with this species in any part of South-East Africa where the altitude of the country was much less than 3000 feet above sea level. One must also eliminate from its range all mountainous districts—at least I have never

¹ They are also occasionally found about the salt-pans on the lower course of the Botletli River, Ngamiland.—ED.

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met with it amongst broken hilly country where there were no fairly level expanses of forest and plain. It is as difficult in the case of the roan antelope as it is with many other species of African animals to say confidently what kind of country is best suited to its habits. In Western and Southern Matabeleland and throughout the countries watered by the tributaries of the Limpopo the land is almost everywhere covered with either open forests or thickets of dense thorny bush.

The roan antelope is generally distributed through these countries, and any one who had only met them amidst such surroundings would pronounce them to be a distinctly forest-loving species, like the sable antelope. However, in Mashunaland they seem to prefer the most open parts of the country, and used to frequent the high open downs of that part of South Africa in common with the tsessebe, the ostrich, and the blue wildebeest. They were also numerous on the broad treeless turf valleys of a somewhat lower level, where, in addition to the two former species, they had as companions the oribi and Burchell's zebra.

I have always noticed too, that if there are any large open spaces of ground free from forest or bush in a district frequented by roan antelopes, these animals are more likely to be met with in such open places than anywhere else. Where I have met with them too, to the north of the Zambesi, the country has always been very open, and of the same character as the high plateau of Mashunaland. I have never met with roan antelopes in very large herds like elands or sable antelopes, but have usually found them in bands of from five to a dozen, and seldom if ever seen upwards of twenty or twenty-five together.

Usually there will be only one full-grown bull with a herd, but I have occasionally seen two adult males living together in apparent amity with perhaps a dozen females. Old bulls are often, in fact usually, found living alone. Though the two species are apparently nearly allied, I never remember to have seen roan antelopes consorting together with sable

antelopes, though I have often seen the former feeding in company with elands, the two species running off together on being alarmed.

Roan antelopes differ considerably one from another in colour, some being of a very light grayish or brownish shade, whilst others are reddish roan or dark gray. When standing in an open plain with the sun shining upon them, they often look almost white, which accounts for the name of *white sable antelope* by which they are known in many native dialects. Like the sable antelope, the roan runs with great speed and endurance, and, except in the case of cows heavy with calf, cannot be run down with an ordinary South African shooting pony. I have had many a long chase after a roan bull on the open downs of Mashunaland, but never succeeded in overtaking one without first having wounded him. After being chased for a mile or two, roan antelopes run with their mouths open, but, excepting in the case of cows heavy with calf, which may come to a standstill at any moment, I have found that they will go on running with their mouths open until they have tired out anything but an exceptionally good horse. The first calves are dropped in August, and the bulk of them in September and October. At first the little creatures are scarcely distinguishable from very young sable antelope calves. They are, however, somewhat lighter in colour, with longer ears, and the incipient face-markings are also slightly different.

Specimens of both, as well as of adult animals, may be seen in the Mammalian Gallery of the Natural History Museum at South Kensington. When living in open plains, roan antelope will be found to be very keen-sighted and they will not allow a mounted man to approach them without a hard gallop; but if encountered in open forest in a district where they have not been much persecuted, they will not run until one is pretty near them, and if not pressed will keep stopping and looking round at their pursuer, often affording several good chances for a shot before finally making up their minds to settle down to a steady run. When wounded, a

roan antelope bull becomes a fierce and savage animal, and if brought to bay is more prone to charge, I think, than a sable antelope under like conditions.

I have seen several determined charges made by these animals, and have known one to gore a horse through the thigh. They are dangerous antagonists, too, if attacked by dogs; but although their shorter horns look better adapted for use than the long curved weapons wielded by the sable antelope, I have never seen such havoc wrought by them amongst a pack of dogs as by one of the latter animals.

When badly wounded they lie down, and, when assegais are thrown at them, often give vent to shrill squealing cries, whilst striking at the shafts of the spears that have wounded them.

Though amongst the finest of African antelopes, the roan antelope somehow lacks the bold and noble carriage of his near relative the sable. He is a larger animal, a good bull standing about 4 feet 9 inches at the withers, but he does not possess the great arched neck surmounted by the heavy mane, nor the long sweeping horns and rich dark colouring of the latter animal. The roan antelope has only a short hog mane of reddish-brown. His ears, which in the cows are surmounted with tufts of brownish-black hair, are immensely long, and the black and white markings of his face are very handsome and striking. The horns in the roan rise straight from the skull just above the eyes, and curve backwards as in the sable antelope. In the old bulls they are very massive, rounded, and deeply annulated to within a few inches of the points, which are sometimes very sharp. In length the horns of the bulls average about 28 inches, and of the cows about 22 to 24 inches.

Anything over 30 inches is unusually good. I have seen two pairs shot that measured 33 inches over the curve, and another of $32\frac{1}{2}$ inches.¹ The longest pair of bull horns that I ever shot myself measure $32\frac{1}{8}$ inches;

¹ The longest pair mentioned in *Records of Big Game* measure 35 inches over the curve. Another pair, procured by Major Goold-Adams from the Okavango River, measure $34\frac{1}{4}$ inches.—Ed.

the longest cow horns $31\frac{1}{2}$ inches. This latter animal I shot on the open downs of Mashunaland many years ago, and I have never heard of another pair of roan antelope cow horns that approached this length. Towards the end of the rainy season, say in March and April, roan antelopes get into very good condition, and the cows often become really fat, and they are then excellent eating.

Indeed my own opinion is that neither the meat of the eland nor the gemsbuck, nor that of any other South African antelope at any time of year surpasses in juiciness and gaminess of flavour a sirloin of roan antelope when in such high condition that it can be roasted in its own fat. The meat of an old roan antelope bull in low condition is of course tough and tasteless, but I have never known it so watery and insipid as the meat of elands usually becomes towards the end of the dry season, after these animals have taken to eating leaves.

F. C. SELOUS.

IN EAST AFRICA

Kolongo OF THE KINYAMWESI; *Abu Maaref*, OR *Maharif*, OF UPPER
NILE ARABS

The existence of the roan antelope in East Africa was unknown to Europeans before the year 1890, when three (a bull and two cows) were seen by myself and Mr. Gedge on the northern slopes of Mount Elgon; but as they were at a considerable distance it was impossible to determine the species, whether the true roan or *bakeri*, and it remained in doubt up till 1896, when a fine bull was killed on the Athi plains by the late Captain Dugmore, R.N.R. The head of this beast was seen by several men who had killed the roan in South Africa, and was identified by all of them, but it was not until a year later, when it was brought home by Dr. Hinde and presented by him to the National Museum, that all doubt as to its being *typicus* was finally settled; it was pronounced to be the true roan and not *bakeri*. About the same time that Captain

Dugmore obtained his specimen, I saw a small herd of seven on the banks of the Molo River below the Ravine Station, but they were so wild and unapproachable that I could not get near them, and had to content myself with a long and hungering look through a telescope. In October 1897, when crossing the Mau plateau with Colonel Macdonald, we saw a herd of eleven at an altitude of 8000 feet. One of them was a very fine bull, much darker than the rest, but again they were quite unapproachable. In July of the following year a fine old solitary bull was killed by a Government clerk named De Silva on the Molo River, about 25 miles from the Ravine Station, and the head is now in my possession. On my way down country in October last, I had the good fortune to come across a herd of seven by the woodside in a grand position for a stalk, and bagged the two best heads, but both unfortunately were cows, there being no bull with them. This was at a place called Gabrauni in the Kiyu hills south of Machakos. These two heads with scalps, as well as the skull of the bull shot by Mr. de Silva, have been pronounced by Mr. Rowland Ward, who has had great numbers from all parts of Africa through his hands, to be beyond a doubt the true roan.

From the above records it will be seen that this beast is very rare in East Africa, though fairly well distributed. Since writing the above I have seen the *Proceedings of the Zoological Society for April 1899*, in which Mr. Oscar Neumann, a German traveller and naturalist, records having shot five of these antelopes out of one herd on the river Bubu between Irangi and Mount Gurui, and on the strength of a few minor details in the matter of body-colouring, which appear to me too trivial for serious consideration, has proposed to make it a new species under the name of *H. rufopallidus*.

The roan antelope is so well known that no description is necessary, and any little variations in colour, which no doubt do exist in many other animals with a wide geographical range, may be attributed to local variations.

Now that the Soudan is being opened up, specimens of the so-called

H. bakeri will no doubt be brought home, and though they will probably be found to vary slightly in coloration, I believe it will be impossible to separate them specifically. The measurements and weights of the largest cow killed by myself are as follows, and show that in regard to size the roan comes next in order to the eland:—Total length, 8 feet 7 inches; height at shoulder, 4 feet 5 inches; tail, 1 foot 7 inches; weight, 516 lbs.

F. J. JACKSON.

IN WEST AFRICA

HAUSA NAME, *Gwenke*; YORUBA, *Ajatāku*; IGARA, *Chachangaloo*;

MANDINGO, *Da kevoi*; ANGOLA, *Palanca*

The roan antelope is without doubt the finest antelope to be found in West Africa. Standing at its best 15 hands high, with compact, pony-like body, strong quarters, deep shoulder, broad chest, with its large fearless eye set in its square equine head, which is held firmly erect, and with the clean, fine, antelopean lines of its legs, it is a most magnificent animal. Its presence is almost regal, and since it stands, as though aware of its superiority of form and size, firmly set upon its feet, graceful, yet strong in all its lines, it is quite a king amongst West African antelope in its nobility of port and its apparent contempt for all ignobler forms of life.

It rarely herds together in any numbers, and even in this respect it would almost appear that each pair must retain their own individuality and be monarchs unto themselves.

The effect of the equine body and head upon the antelope legs is very curious at first sight, and one might, on *a priori* grounds, venture to think that the strength of the body frame would detract from the grace of the legs; but as a matter of fact they harmonise in a fashion which can only be appreciated by those who have seen and studied them at rest and in motion.

In colour the body of the West African roan antelope is rufous-gray, shading off into a gray-white on the under surfaces. Its fore-legs are black

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in front as far down as the knee ; its head is black, a deep black, with a clean white spot both in front and behind the eye, the muzzle being white on both sides, the white just meeting over the nose. The hair is short, excepting the mane, and lies evenly on the skin throughout the body. The mane extends from the crest to the withers, the longest hair, which reaches 5 inches in length, lying close to the crest. This mane is stiff and stands erect. Full measurements of a small bull shot at Lokoya on the Niger are as follows :—

Height at shoulder	53 inches.
„ croup	48 „
Length from between horns to root of tail	71 „
Depth of body at shoulder	28 „
Head length from between horns to tip of nose	14 „
Mane extends from between horns for	26 „
Length of hair of mane	4½ „
Length of ears	13½ „
Tail, short hair	14 „
„ long „	12½ „
„ total length	26½ „
Fore-foot length	5 „
Hind-foot „	4½ „
Horns, length	25½ „
„ circumference at base	10 „
„ width between tips	10½ „

The longest horn I have seen measured $31\frac{1}{2}$ inches. The horns start out from the head at an angle of about 75 degrees, and curve in a regular arc upwards and backwards. Whilst the curve is roughly that of a segment of a circle with a radius of 2 feet, the angle at which the horns are set in the head prevents them coming down well on to the neck, except when the muzzle is thrown well up into the air. There are no side curves, and the divergence of the horns from each other, from base to tip, is therefore perfectly regular. A section of the horn is slightly elongated in the direction of the body-length, and the horn itself is ringed at a slight angle

for three-fifths of its length, the tapering occurring more in the upper than in the lower half.

Whilst a fairly common antelope on the Middle Niger and along the River Benue towards Lake Tchad, I cannot discover that it is at all frequent in the hinterland of the Gold Coast, Sierra Leone, or the Gambia, and I cannot hear of it at all in the hinterland of the Cameroons. It is probable that it is very local in habitat; and that it is not general throughout the hinterlands of West Africa, as is the hartebeest. I imagine it is confined to districts separated from each other by more or less long stretches of country, where it is unknown. On the Niger its southern limit may be placed at 7.30 north latitude, and it is known throughout the Middle Niger, and is also reported by natives as existing in places in the big bend of the Niger, and between the Middle Niger and Lake Tchad.¹ Whilst it is found in the light bush which the hartebeest frequents, it evinces a more decided preference for the more open country farther north, and was met in fair numbers in open country in Yauri, on the left bank of the Niger, in latitude 11 to 12 north.

It is shy in its general habits, avoiding cultivation or other haunts of men to a greater degree than most antelope, and it may be roughly stated that where the population of a district is large, and villages and farms lie close together, the roan antelope is not to be found.

It is more often come across singly or in pairs than in herds; and I have never seen it in proximity to other antelope except on one occasion, when a herd of hartebeest galloped right up to me as I was drawing a bead on a roan bull. In pairs they range over a large extent of country in a day, and do not appear to lie up or rest much during daylight. As they wander they feed at intervals, moving quickly over the country, and rarely stopping in one spot. At night they lie up on rising ground, and towards

¹ The roan antelope is found also in Angola on the west coast, where Mr. G. W. Penrice has shot specimens which I have had the pleasure of examining. These are practically identical with the roan antelope of South Africa.—En.

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the top of it, and care little whether they rest in the open or under trees or among rocks. Stony ground is not an unlikely place in which to come across them ; and I have even seen them scrambling over the big boulders of the kopjes of the Middle Niger district.

Their spoor can be distinguished from that of the hartebeest and waterbuck by its greater size, and more especially by the depth of the slot, their weight being very easily inferred from the spoor on any ground which will retain a permanent impression. Opinions as to the speed of the West African roan vary considerably. Some sportsmen do not consider them to be in any way abnormally fleet, and assert that the hartebeest can easily distance them. Others affirm that in their grand stately action they cover an immense distance in very short time, and that they can keep up the swinging majestic canter, their favourite pace, for a very long time. As I have never ridden one down I am unable to state definitely which opinion corresponds with fact, but should say that for short distances the hartebeest would at least be equalled, and I would further incline to a belief in the staying powers of the roan antelope.

In hunting the roan the intuitive powers born of a long experience of bush work are most to be relied upon. It seems to be more or less useless to follow upon their tracks in the hope of coming up with them. They travel so quickly at a walk and loiter so little that, given even a few minutes' start, it may take hours for a hunter on foot to come up with them. But their progress is rarely straight ahead, their line being either circuitous or zigzag. If one's experience is to be trusted, the best plan of hunting them, after coming across tracks made within the hour, is to make a cast in the most likely direction ; and the indications which should guide one in making any such cast are so slight and so much a matter of intuition rather than of definite reasoning powers, that it is quite impossible to give any idea of what the hunter should take into account. Only bush experience can give one success in making such casts, and, even when

successful, a man may often feel himself to have been exceptionally lucky. Of course the one direction in which a cast should never be made, and yet as often as not is made by the novice, is "down wind." A useful point to remember in hunting the roan is that it is a late riser. It will lie as long as an hour after the first break of dawn, if undisturbed, and therefore, when one knows for a certainty that roans are in the neighbourhood, it is as well to be moving early, and well away from camp before dawn breaks. It may happen then, as it has happened to me, to kick them up from one's feet. They will scramble up and away with a snort; but the chances are that, having traversed 80 or 100 yards at breakneck speed, they will, with the fatal curiosity of the antelope, pull up to look back, in order to ascertain the cause of the alarm, and then the hunter gets his chance. If the place from which one kicks them up is circumscribed by bush or rising ground, let them disappear before moving after them, and, once out of sight, double up to the edge of the bush, or to just behind the crest of the rise, and they will probably be seen standing looking back. To double instantaneously after them gives them a second alarm, which will carry them well away without any halt at all.

The flesh of the roan antelope is coarse, but of no especial strength of flavour, and it is to be preferred to that of the waterbuck and hartebeest.

A. J. ARNOLE.

THE BLAAUWBOK (*Hippotragus leucophaeus*)

The Blue Antelope OF PENNANT; *Antelope leucophaea* OF PALLAS

The blaauwbok, which obtained its Cape Dutch name manifestly from its bluish colouring, has been for about a hundred years quite extinct. It is still one of the problems of naturalists. No complete example is, unfortunately, to be found in this country, but mounted specimens exist in the museums of Paris, Leyden, Vienna, Stockholm, and Upsala. There can be little doubt that this antelope, which seems, even during the early days of the

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Dutch occupation of South Africa, to have been a scarce and very local species, is to be looked upon as a near relative of the roan antelope, which, although doubtless sprung from the same remote ancestry, had, during ages of the past, become separated from its fellow-species and thus developed somewhat different characteristics. Within the last two hundred years, certainly, the true roan antelope has never been known south of the Orange River. How and when the blaauwbok became separated from the rest of its species, and pushed its way to the south-west littoral of the Cape Colony, it is, of course, impossible to say. The early Dutch settlers found it in the neighbourhood of Swellendam, about 130 miles east of Cape Town, in a diversified and very beautiful piece of country consisting partly of open flats, partly of broken country—mountains, kloofs, and ravines. The blaauwbok was never known in any other part of South Africa than the Drosdy, or division, of Swellendam, and there, probably, within an area of 100 miles—a curiously confined habitat. The last known specimen seems, from the information of Lichtenstein, to have been killed in about the year 1799. But this antelope must have been very scarce for some time before. Barrow, a thoroughly competent observer, who journeyed through Swellendam in 1797, mentions in his *Travels* that none had then been heard of for ten years past. Indeed Barrow believed that the animal was then quite exterminated. Le Vaillant, that lively but not always accurate Frenchman, states in his book that he shot a specimen in 1781, and gives a picturesque description of his hunt. Unfortunately Le Vaillant's accounts are not always to be trusted. He may have procured and probably did procure and bring home a skin; in fact I believe the specimen in the Paris Museum was brought by him to Europe. But his narratives of sport are, to those who know his history, not always convincing.¹

¹ Le Vaillant has been convicted of "faking" bird skins in the most outrageous manner, and his accounts of adventure and hunting were stoutly denied and laughed at by his Dutch contemporaries at the Cape.

FIELD
MUSEUM



PLATE XII

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| 1. Common Eland Head (male). | 4. Sable Antelope Head (male). |
| 2. West African Eland Head (male). | 5. Sable Antelope Horns (female). |
| 3. Common Eland Head (female). | 6. Roan Antelope Head (male). |
| 7. Roan Antelope Horns (female). | |

The general colour of the blaauwbok was bluish-gray, the front of the face, the thin reversed mane, the outer parts of the ears, and the fronts of the lower portions of the legs being rufous brown; the under parts, upper lip, and a space in front of the eye whitish. The face and head were not marked conspicuously, as in the true roan antelope, and the ears, which were long, lacked the black tufts noticeable in the more northern species. The horns, however, were distinctly like those of the roan antelope, although smaller and less robust. Those of the example in the Paris Museum measure $21\frac{1}{2}$ inches over the curve. The same specimen, a male, measures 45 inches at the withers, rather more than a foot less than the stature of a good roan antelope. Various attempts have been made, at different periods, to classify this vanished creature as merely an immature specimen of the roan antelope. But there can, I think, be no reasonable doubt, in the minds of those who have studied the subject, that the blaauwbok is a good species. Mr. J. G. Millais, who has examined the Paris Museum example, and is well acquainted with the roan antelope in the wild state and from stuffed specimens, has informed me that he has no doubt that the blaauwbok is a genuine species. The testimony of such an expert is, to my mind, very valuable. The British Museum possesses a pair of horns which are attributed to the blaauwbok. These measure 20 inches in length and 6.1 inches in basal circumference.

H. A. BRYDEN.

THE ELANDS

Genus TAUROTRAGUS¹

The last sub-family group of ruminants to which the name of antelopes can properly be applied is that of the *Tragelaphinae*, typified by the

¹ Desmarest's name, *Oreos* (1822), for the elands had been employed at an earlier date for other animals, and is therefore inadmissible. For the common species the name *Antelope oryx*, Pallas, is the earliest.*

* This is a quite new scientific name for the eland. The old designation, *Oreos capra*, had endured so long, and was so generally recognised by all hunters and naturalists, that it will be generally regretted. Mr. Lylekker's new name, bestowed after mature consideration, is, however, entitled to respect, and will probably become generally recognised.—En.

bushbucks, but likewise including the kudus, elands, and the Indian nilgai. So far as its African representatives are concerned, the sub-family may be characterised as follows. The species are of large or medium size. With the exception of the elands, the horns are confined to the males, and are spirally twisted, keeled in front and behind, and devoid of ridges. The muzzle is naked, small glands are present on the face, and the tail is long or medium. In most cases white stripes, sometimes with spots, are present on the body, and there may be a white chevron on the forehead. The upper cheek-teeth are remarkable for the shortness and breadth of their crowns.

From the other members of the sub-family elands are at once distinguished by the possession of horns in both sexes, those of the females being longer although more slender than those of the males. The horns are directed upwards in the plane of the face, and form a close spiral on their own axis. Both sexes, which are alike in colour, have a deep dewlap; and old bulls develop a large tuft of bushy hair on the forehead. The tail, which is tufted at the end, is comparatively long, reaching to the hocks. In size elands are the largest of all antelopes.

The species are :—

1. The Common Eland (*Taurotragus oryx*).
2. The West African Eland (*Taurotragus derbianus*).

Two races of the former (the Cape race and the northern race) may be recognised, distinguished by the absence or presence of vertical white stripes.

THE ELAND (*Taurotragus oryx* AND *T. oryx livingstonei*)

IN SOUTH AND SOUTH CENTRAL AFRICA

Eland OF CAPE DUTCH ; *T'ganna* OF HOTTENTOTS ; *Pofa* OF BECHUANAS ;
Impofa OF AMANDEBELE, ZULUS, AND KAFFIRS ; *Mofa* OF MASHUNAS ;
Ec-pofa OF MAKALAKAS ; *Insefa* OF MASUBIAS AND BATONGAS ;
Doo OF MASARWA BUSHMEN.

Eland is the Dutch equivalent for elk, and is the name which was given by the first Dutch settlers in South Africa to the largest species of antelope which they met with in that country, in compliment no doubt to its great bulk, for there is no other point of resemblance between the two animals. Probably none of the early Dutch settlers had had any personal experience of the European elk or knew anything whatever about that animal, except that it was of large size and heavy build, and so they foisted the very inappropriate name of the largest deer of the Northern Hemisphere on the largest antelope met with in their adopted country. The desire of the early Dutch colonists of the Cape of Good Hope to discover resemblances between the wild animals of Southern Africa and those they had previously seen or heard or read of in Europe was doubtless a very natural one, but it must have led to some confusion in the Dutch language, in which, not to mention other cases, there is only one word—eland—to describe two such different animals as *Alces machlis* of Europe and *Taurotragus oryx* of Africa ; whilst the Alpine chamois and the South African oryx are both known as the gemsbok. The name eland was adopted by the British colonists in South Africa, and has become general in all European languages, as the designation for the largest of African antelopes, the original derivation of the word not being of course apparent to any one but a native of Holland.

Time was when these magnificent animals roamed in herds over the whole of South Africa from Cape Agulhas to the Zambesi. Of this there

can be no doubt, for, besides the records of European travellers who visited South Africa during the seventeenth and eighteenth centuries, we have the evidence of the bushman paintings, met with in the caves of the mountain ranges of the Cape Colony and the Orange Free State, bearing dumb witness to the fact that the eland was once plentiful in those territories. Even now, or at any rate as lately as 1896—for it is impossible to tell just at present how much havoc the terrible plague of rinderpest which has recently swept through South Africa has worked amongst the elands—the range of this species, although it has long been banished from all the settled states of South Africa, is or was still very extensive. It is said that a few elands yet survive amongst the fastnesses of the Drakensberg mountains, where that range divides Basutoland from Natal; but with this exception I doubt whether any of these animals are still to be found anywhere within the borders of Natal, Zululand, Swaziland, the Cape Colony, British Bechuana-land, the Orange Free State, Griqualand West, or the Transvaal. From all these territories they have been driven long ago, but throughout the desert tracts which lie to the west of the southern portion of the Bechuana-land Protectorate, and from thence northwards through the western and northern portions of Khama's country, and from thence eastwards through the northern portions of Matabeleland and Mashunaland, and indeed throughout the whole of South-Eastern Africa from the Transvaal border to the Zambesi, except where European settlements have lately been formed, elands are, or were, quite recently to be met with, often in considerable numbers. In the Northern Kalahari between Khama's old town of Shoshong and the Botletli River, elands are always wandering about in small herds, which sometimes collect into great droves, and migrate eastwards as far as the old waggon track leading from Shoshong to the Zambesi. These migrations take place towards the close of the rainy season, in February and March, at which time of year a small shrub bears berries of which elands are very fond, and they therefore collect in large numbers

wherever these bushes grow. In the dry desert country through which the Chobi River runs, I have always found elands very plentiful both north and south of the river.

Wherever I have travelled, too, in the country beyond the Zambesi I have met with these animals. In Eastern Mashunaland, before the advent of Mr. Rhodes's pioneers in 1890, elands were particularly numerous; and many and many a time I have seen large herds of these beautiful animals, numbering often from 100 to 200 individuals, grazing like herds of cattle over the open downs stretching from the Makubisi River, where the town of Salisbury now stands, to Mount Hampden on the Gwibi River.

The largest herd of elands I ever saw, I met with in December 1879 in the midst of the vast stretch of forest-clad country—often waterless for many months in the year—which lies to the south of the Mababi River. There must have been well over 200 animals in the herd, and amongst them, or rather bringing up the rear, as they trotted away through the open forest, were twelve massive old bulls, besides of course many younger males, which, though larger than the cows, had not yet attained the enormous bulk, and the frontlet of long black bristling hair, which are the attributes of an old eland bull. I well remember the curious sight presented by some 200 pairs of long straight horns, all held at almost exactly the same slant, as this great herd of elands trotted off in a dense phalanx; and how, when they made a sudden turn and the sun glinted on their straight black horns, my companion (the late Mr. H. C. Collison) compared them to the fixed bayonets of a regiment of soldiers.

I once saw a herd of elands in the Northern Kalahari entirely composed of young animals. There were quite fifty of them, all last year's calves, from ten to twelve months old, and there was not a single adult animal amongst them. I have never seen anything of the sort before or since.

The eland of South-Western Africa, as described by the earlier European travellers who visited the Cape Colony in the seventeenth and

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eighteenth centuries, and more recently figured by Sir Cornwallis Harris from specimens obtained in 1837 in what is now British Bechuanaland and the Western Transvaal, was of a uniform pale fawn-colour from birth, though the coats of the older animals gradually became so thin that the dark colour of the underlying skin showed more and more through the scanty hair, giving them a general grayish appearance, the old bulls often looking a bluish-black in deep shade, and being described by the colonists as "blue bulls."

On the other hand, all the elands found throughout Rhodesia and Eastern South Africa, and wherever I have travelled to the north of the Zambesi, are striped.¹ The calves are a rich reddish-fawn in ground-colour, with a dark mark down the back, black patches on the insides of the fore-legs, and eight or nine conspicuous white stripes on each side.

As these striped elands grow up, they differ considerably individually one from another. Some of them, when about four years old, are amongst the most beautiful of all African antelopes. Here is the description of a young bull shot in Mashunaland some years ago :—

"He had not attained the immense neck or the large bunch of black bristly hair on the forehead that are only found in an old bull eland, but, on the other hand, whereas the old bulls never have much hair upon their bodies, this younger animal possessed a splendid coat, the ground-colour being of a rich, warm reddish-fawn, with a broad black line running down the centre of his back from the mane on the wither to the tail, whilst on each side he was banded with broad white stripes, quite as distinct as those on a koodoo. The dark patches on the inside of his fore-legs were also very large and black. He had too a splendid long even pair of horns, measuring 2 feet 7 inches in length, whereas in an old bull the horns, being worn down, seldom exceed 28 inches."

Generally the ground-colour is not so rich as in this specimen, and, as

¹ This is the northern race of eland, sometimes known as Livingstone's eland (*Thaurotragus oryx livingstoni*).—Ed.

with the desert elands of South-West Africa, as the coat becomes thinner with age, the general colour both in the bulls and the cows becomes a bluish-gray, and at a little distance the white stripes are not distinguishable. The dark patches on the insides of the fore-legs seem to become fainter with age, and in very old animals disappear altogether. As long, however, as there is any hair left, the white stripes can always be plainly seen on a close inspection. Specimens of the striped eland (an adult male and female from Mashunaland) may be seen in the Mammalia Gallery of the Natural History Museum at South Kensington.

The difference between the striped and unstriped forms of elands in South Africa is entirely superficial and in no sense specific, *Taurotragus oryx livingstonei* being merely a variety of *Taurotragus oryx typicus*. The two forms breed together freely and the progeny are fertile, as has been proved by experiments undertaken at the Zoological Society's Gardens in London. Moreover, intermediate forms are found between the two varieties or sub-species, in fact there appears to be a gradation through a long series of infinitesimal variations from one form to the other.

In April 1879 I shot some elands in the Northern Kalahari, between Bamangwato and the Botletli River. None of these elands showed any signs of stripes, but two of them had light gray patches on the insides of the fore-legs. About 150 miles farther north, however, nearly all the elands that I shot were more or less striped, though in most cases the stripes were so faint that they only became apparent on a close inspection. Travelling northwards towards the Chobi River I found that although some elands were still to be met with, on which no stripes could be detected, most of them were more or less plainly striped, the patches on the insides of the fore-legs becoming gradually darker at the same time.

North of the Chobi, and between that river and the Zambesi, the elands, taken as a whole, become well striped, and the dark markings on the insides of the fore-legs more and more conspicuous, many individuals being

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as richly marked as the real *Taurotragus oryx livingstonei*, which was first observed by Dr. Livingstone at Sesheke, immediately north of the Central Zambesi. Thus, speaking from my own experience, I should say that all the elands found in South Africa at the present day south of the 23rd parallel of latitude are gray elands (*Taurotragus oryx typicus*) ; but that north of that parallel of latitude a tendency to show white stripes on each side of the body, and dark patches on the insides of the fore-legs, together with a dark median line down the centre of the back, from the withers to the tail, commences. I would say further that this tendency is at first confined to certain individuals, but becomes more general, and the white stripes and dark markings gradually more intensified in individuals as one travels north and north-east, until north of the Zambesi and in Mashunaland and all over South-Eastern Africa all the elands are striped without exception, and all of them show black patches on the insides of the fore-legs, and a dark mark down the centre of the back, and often a white arrow-shaped mark across the nose, as in the koodoo and bushbuck.

After an eland bull has attained his full standing height at the shoulder—probably when about five or six years of age—he still continues to grow enormously in bulk, the neck especially becoming so large that when an old eland bull lies dead on the ground the huge swell of the upper side of the neck is liable to give one the idea that the animal must have been suffering from a tumour. Here are a few carefully-taken measurements of the eland bull now in the Mammalia Gallery of the Natural History Museum at South Kensington :—

“Standing height at withers, 5 feet 9 inches. Girth of neck, midway between jaw and shoulder, 5 feet 1 inch. Depth of body measured over the curve behind the shoulder from the withers to the middle of chest, 4 feet 1 inch. Breadth of chest between the fore-legs, 1 foot 2 inches.” These last three measurements were taken on the naked carcase after the skin had been removed.

When old, an eland bull assumes a growth of coarse bristly black hair from 2 to 3 inches in length on the forehead below the horns and extending down the nose between the eyes. In some cases this long bristly black hair hangs right over the animal's eyes and must much interfere with its sight. It will always be noticed in a freshly killed eland bull that this long hair is damp, often matted together, and emits a strong effluvium, and this is probably due to the fact that these animals are in the habit of anointing their foreheads with their own urine. It is generally asserted that the gray desert elands of South-Western Africa—that is, large males of the species—attain to a standing height at the shoulder of from 6 feet to 6 feet 6 inches, and I once used to think that the elands of the Kalahari Desert grew larger and heavier than those found in Mashunaland. However, in 1884, I carefully measured with a tape-line some fine specimens of eland bulls in the Northern Kalahari, and none of these animals stood as high at the shoulder as the largest elands I have measured in Eastern Mashunaland. Of the latter several stood 5 feet 9 inches, and one 5 feet 10 inches; these measurements all having been carefully taken with a tape-line between two sticks held parallel to one another, the one touching the ground at the base of the fore-foot and the other at the wither of the dead animals.

Six feet six inches seems to me an impossible standing height for an eland to attain to.¹ I think it probable, however, that in good seasons the elands in the Kalahari Desert become fatter and heavier than in any other part of South Africa, for the grasses in that country are very succulent and nourishing, and cattle and sheep thrive and fatten on them exceedingly well as long as they can obtain water.

¹ There seems no absolute reason why elands in the good days, when these animals were extraordinarily abundant, should not have attained this height. In 1797 Mr. Barrow (afterwards the well-known Sir John Barrow, Secretary of the Admiralty), when travelling at the Cape, shot an eland the measurements of which he gives as "ten feet and a half in length and six feet and a half in height." Cornwallis Harris gives the height of a mature bull eland as 6 feet 6 inches. Both these are thoroughly reliable authorities.—Ed.

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The eland, however, in common with the gemsbuck, springbuck, and other antelopes, is independent of water, for although these animals drink regularly in those parts of the country where water is plentiful, yet nothing is more certain than that they are able to exist for long periods without ever seeing water. During such times they probably obtain the liquid necessary for their subsistence from wild water-melons, and various roots which grow at a considerable depth below the surface of the ground in the desert parts of South Africa, and some of which contain a great deal of water. I have often seen the bushmen dig up these roots, which looked something like turnips, but contained more water than an orange does juice, and I have no doubt that the desert animals are able to scent them and then scratch them up, the soil being soft and sandy; indeed I have often seen places where gemsbuck had dug up these roots.

The flesh of the eland is often spoken of as if it were always superior to that of all other African antelopes, but this has not been my experience. When an eland is fat and in good condition its meat is most excellent, juicy, succulent, and well flavoured, but it is not better than the meat of a roan antelope or gemsbuck cow in really high condition. On the other hand, in November and December, towards the end of the dry season and the early part of the rainy season, elands get into very low condition, and, the pasturage at that time being usually very dry and scanty, browse on the leaves of various trees and bushes. At such times their flesh becomes watery and tasteless, and is infinitely inferior to the meat of the smaller antelopes, such as hartebeests, wildebeests, etc., at the same time of year. In Mashunaland and South-Eastern Africa generally, elands are in the highest condition during the months of March, April, and May. At such times they are difficult to secure, as they are never found in open country, but live amongst the broken, rugged hills, covered with thick Mahobohobo forests and long coarse grass, which lie below the level of the high plateaus. They are, too, at this season never found in large herds,

but are scattered in ones, twos, and threes, or little herds of four or five to eight or ten in number all over the country.

At night they are very fond of raiding the native corn-fields, jumping over the fences which surround them and seldom or never going through the openings left by the natives, in which pitfalls neatly covered over with grass have been dug for their reception. Long experience, which has at last become an hereditary instinct, enables them to avoid these traps. Long before daylight they leave the corn-fields and make for the hills, often climbing to the top of a rugged and steep ascent and taking up a position at the top, from which they will be able to view or scent any one who follows on their tracks; and long before one reaches the place where they are resting, they will be down the other side of the hill, no matter how steep it may be, and away up the side of another, amongst the thickly growing Mahobohobo trees, at a pace that makes it very difficult to overtake them. Indeed, speaking generally, it may be said that in broken, hilly, thickly timbered country, in the early part of the year, before the long grass is burnt off, a horse cannot live with an eland. At this time of year the old bulls are nearly always alone, and are always in thick forest or very broken country (I am speaking of South-East Africa). They are, too, excessively shy and wary, and altogether one of the most difficult of all animals to bag at this season. In June—in early years in May—the natives commence to burn the grass on the high plateau of Mashunaland, and the elands probably smell the smoke in the air, and commence to hanker after the sweet young grass, which they know will soon spring up in the valleys where the old grass has been burnt away. They gradually collect into herds, and, leaving the shelter of the hills and forests farther and farther behind them, wander all over the open grassy downs; and, when encountered in such situations, they can be ridden into and shot with the greatest ease. As soon as they commence feeding on the young grass, they fall off in condition very rapidly. In open country elands fall an easy prey to

mounted hunters, as, although there are exceptional cows that none but a good horse can run down, a very moderate horse can run down an average eland bull or cow. I have found by long experience,¹ that, contrary to the generally received idea, elands run best when they are in good condition before they commence to feed on the young green grass; although, of course, when the accumulation of fat round the heart of an old bull becomes very great, he would doubtless not be able to gallop far. But I remember that a bull which I killed for meat in December 1883 was so weak that he never broke into a gallop at all, and on cutting him up I found that there was not a particle of fat in his marrow, whilst his flesh was as watery and insipid as that of an ox which had died from the effects of the stings of tsetse flies—which I have also been obliged to eat on more than one occasion. An eland's natural pace when disturbed is a trot—a splendid, long, ground-covering trot, which it requires a horse to go at a hand-gallop to keep up with, but which an eland can maintain apparently without much effort for miles. When a herd of elands starts off running, first one then another of its members will often spring up into the air, leaping as high as the backs of their fellows. When pressed, an eland will first trot faster and faster, and then break into a swinging gallop, which it will be able to maintain without a break for from half a mile to a mile and a half; and so long as an eland is actually galloping, none but an exceptionally good horse will actually pass it, although a fairly good horse will keep close up all the time. At length the eland will break from his gallop, and, with the foam and slaver flowing from his mouth, and flying back over his great neck, now black with sweat, once again commence to trot. He is, however, probably not yet done. As his pursuer presses close up to him he will very likely resume his gallop and keep it up again for a quarter of a mile or so. But that will be his last effort, and now you may gallop past him, and shoot him through the heart as he trots past you or

¹ Since I published my first book in 1881.

try and drive him nearer to your camp or waggon. An eland always runs against the wind. You can make him swerve off several points to the one side or the other, but I have never yet seen one of these animals that could be made to turn right round and run down wind in a direction exactly opposite to the point he was originally making for. I have seen many a one charge in resisting the attempt to make him do so. If, in trying to make a tired eland turn round, you gallop in front of him, rein in your horse right in his path, and shout and wave your hat at him, he will come steadily trotting on till he is within a few yards of your horse, and then, suddenly lowering his head till his nose is right down between his fore-legs, and his horns are pointing forwards and close to the ground, he will make a rush and bring his horns up just where your horse was standing. There is always plenty of time to get out of the way, and my horse at any rate was never where the eland thought he would be when he brought up his horns. This is the extent of an eland's charge. He will never pursue you, but just go trotting on his course again, when he has removed or obliged you to retire from his path. A very good, quick, and handy shooting pony belonging to Lo Bengula was killed by an eland within my recollection ; but this is the only accident of the kind I have ever heard of, and it was owing no doubt to extreme clumsiness, stupidity, and bad horsemanship combined, on the part of the native Matabele who was riding the unfortunate horse. Elands are, I should think, amongst the least pugnacious of antelopes, and several bulls will always be found harmoniously consorting together with every large herd of cows. The latter begin to drop their calves early in June in South-East Africa, a full two months earlier than any other of the various species of antelopes living in the same country. The bulk of the calves are, however, born in July, and the late ones in August. The little creatures gain strength very rapidly, and when but a few days old can only be run down by a good horse after a hard gallop for the best part of a mile. After capture they will drink milk

readily out of a bowl, and very soon become perfectly tame. I was, however, never able to rear any of those I caught, and now believe it was because I gave them too much fresh cow's milk, which produced diarrhœa, from which they never recovered, but gradually became weaker and weaker until they succumbed. The horns of an eland bull attain their full length before he develops the immense neck and the growth of long coarse black hair on the forehead, which are the distinguishing features of an old bull; and when this stage has been reached, the horns have often been much worn down, or rubbed away at the points.

The longest pair of eland bull horns I have ever seen belonged to an animal that was shot close to my camp on the Hanyani River in Mashunaland in 1887 by a Boer hunter named Karl Weyant. I measured them carefully with a tape-line and they were 33 inches in length, and very thick and heavy as well.¹ The longest pair of cow horns I have ever seen I shot myself in the Northern Kalahari. They measured 34 inches in length, but were a very ugly and uneven pair, and I did not keep them.²

F. C. SELOUS.

IN NYASALAND

Known by various native names in different districts, *sefu*, *nchefu*, etc.

The eland found in British Central Africa is the striped variety ("Livingstone's eland," *Taurotragus oryx livingstonei*).

It is fairly plentiful throughout the Nyasa regions, and—although found in nearly all descriptions of country, and at various elevations—is most numerous in the wooded hills and high-lying open grass districts west of Lake Nyasa.

¹ This pair of horns, which I endeavoured to secure for the British Museum, are now in Grahamstown, South Africa, in the possession of a Mr. Chapman.

² The longest recorded pair of eland horns—those of a cow—measure $35\frac{5}{16}$ inches. These came from British Central Africa, and are in the possession of Dr. Percy Rendall. These are horns of the Livingstone eland (*Taurotragus oryx livingstonei*).—ED.

There is much variety in the colouring of Livingstone's eland. The following notes from my diary (1888) refer to an old bull :—General body-colour, dun ; cheeks, cream-colour ; down the nose, dark brown (almost black) ; mane, brown ; ten thin white stripes from backbone to belly, becoming indistinct towards tail ; a black bar 4 inches wide on hind side of each fore-leg, above the knee-joint ; right underneath belly, almost black ; tail, dun-colour, with black hairs at the end ; length of horns, 28 inches ; breadth between horn-tips, 16 inches ; a slight hump on the back ; much dewlap. Some of the old bulls grow to an enormous size, and their spiral horns attain a great thickness ; those of the female are longer than the male's, but not nearly so massive.

During the latter half of the dry season, when all grass has grown rank and dry, and especially at the time of bush-fires, when there is no grass at all, eland feed largely on leaves of different trees. To enable them to reach these, they place their feet on the stems of young trees, much in the same manner as goats do.

The female is, as a rule, lighter coloured than the male, and young cows are sometimes a reddish-fawn colour. The white stripes are most clearly shown when young ; they grow more indistinct with age, but on even the oldest bulls are always distinguishable.

Elands are generally found in small parties—a bull, two or three cows and their young. But in the West Nyasa high, open grass country (locally known as “ Vipsha ”) I have frequently found old bulls living an apparently solitary life ; I have also seen as many as twenty-five eland in one herd.

Since, north of the Zambesi, tsetse fly prevents the taking of horses on hunting expeditions, all shooting is done on foot. Eland are not fast, and, although thoroughly disturbed and alarmed, can often be overtaken by a good runner, as they are given to stopping in their flight to stand and look back. They are very quiet and harmless beasts, even when wounded. I have never seen a wounded eland make any attempt at offensive action.

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They are very different in this respect from many other antelope, especially sable and roan, which are fierce and dangerous at close quarters when wounded.

As soon as the morning sun becomes powerful, eland like to get into shade, and often spend the mid-day hours under some leafy tree, their tails in constant motion flicking the flies off their backs. When among trees, this whisking of the tail is sometimes the first thing which catches the eye, and warns one of their presence.

A bull eland is such a large and powerful beast that he requires something heavier than the Lee-Metford expanding bullet. I have more than once killed them with one bullet from a .303; but a .450 express with the long-based bullet is far better (not the old short-based express bullet).

ALFRED SHARPE.

IN BRITISH EAST AFRICA

SWAHILI NAME, *Mpofu*; MASAI, *Siruwa*; WANDEROBBO, *Singoila*

The eland found in East Africa is the striped variety, *Taurotragus oryx livingstonei*. It is out and away the largest, and, to my mind, the grandest of all the antelopes, though its head as a trophy can in no way compare with the sable antelope or koodoo.

In 1887 it was plentiful on the main road from Vanga to Kilimanjaro, at Adda; in the open bush-country between Kisigao and Mitati, and the Siringeti plains west of Teita. On the road to Machakos it was found at Ndii, Mto Ndai, and Mikinduni, and in the long stretch of sparsely-wooded country between the Rivers Mto Kiboko and Dangi. Farther north it was to be seen in fair numbers between Lakes Elmeteita and Baringo, on the Mau plateau and in Turkwel. In the Kilimanjaro district it was, however, much more abundant than in any other place I have ever visited, particularly on the southern side of the mountain, between Taveita

and Kahe, and in the Arusha wa Chini country. The numbers in a herd varied from three or four—an old bull with two or three cows to look after him—up to sixty or more. The large herds would consist of a couple of old bulls and six or eight younger ones, the rest being cows and calves. Old bulls, both singly or in couples, were often met with, and sometimes three together. These old fellows, so far as my experience goes, never associated with other game, such as *G. granti*, as an old bull oryx or wildebeest so often does. Elands, I believe, can, like most, if not all, of the antelopes and gazelles which frequent the open plains, go for two or three days, perhaps more, without drinking, the heavy dew that falls during the night being quite enough for their requirements. At all events, I have seen a particular herd two or three days running in exactly the same spot and a long way from water, both in the late evening and again early next morning, and found no water in the stomachs of those I killed. They affected park-like and sparsely-timbered country and the open bush so often found bordering the plains, rather than the plains themselves, but sought safety and beat a retreat to the open plains when disturbed.

It may be noticed that so far I have spoken of this grand beast in the past tense. I am sorry to say that rinderpest in 1890 carried off the great majority of them, at the same time that it swept off the buffalo, and they are now no longer so plentiful as they were. They are, however, beyond doubt on the increase, as a few have been shot within the last two years near Kilimanjaro, and between Kibwazi and Machakos, and I have heard on reliable authority of several fair-sized herds having been seen in these places. Since these were all within a few miles of the main road to Uganda, it is possible that they may be steadily on the increase in the now almost uninhabited country north of Kilimanjaro. There are also a fair number still to be found north of Lake Baringo on the road to Lake Rudolph. The eland is at all times a local beast, and appears to be very partial to one particular spot, within a very short radius of which it will

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be found day after day, whether it be a single old bull or a herd. For this reason it is one of the few beasts, if seen and left undisturbed, from its being perhaps at the time in a bad position for a stalk or some other cause, that can be looked for again next day with almost a certainty of finding it. The finest one I shot I found one day, but in such a position that I could do nothing ; I returned for four consecutive days before I could manage to get within what I considered, with such a grand beast, to be a satisfactory range. I had at that time had a good deal of experience with elands, so knew I was pretty safe in leaving it when I did, otherwise I fear I should have risked a long shot and no doubt lost it. Since the eland is now such a scarce beast, and is at all times a grand trophy to possess, let the sportsman remember this rather uncommon trait, and I am sure his patience and perseverance will meet with a well-merited reward.

I am sorry I can give no dimensions, as I did not in those days keep a record of measurements, but perhaps the following little story may give some idea of size. On returning to Taveita, my headquarters, shortly after killing the above-mentioned bull, I met Sir Robert Harvey, his brother, Major C. Harvey, Sir John Willoughby, and Mr. H. C. V. Hunter, who had been in the country some little time, but had not then had the luck to come across any eland, excepting a cow which Sir John Willoughby had shot.

I was naturally full of my eland when we all compared notes about our doings since our last meeting, and I laid such stress on the size of the beast that at last Major Harvey said, "But how big was it ; how did it compare with a buffalo ?" to which I replied, "Well, a bull buffalo (they had all shot several) isn't in it !" The glances cast at each other across the table and a slight movement of feet under it, which, however, did not escape my notice, showed that they were sceptical, to say the least of it, so I said, "Very well, I see you don't believe me. Wait till one of you shoots an old blue bull."

Some time afterwards Sir John Willoughby and Major Harvey went for

a short trip to Lake Jipi. I happened to be in Taveita, when a number of their porters came in ahead of them with the two hind-legs and other parts of what I at once saw was a very fine eland bull. Later on, when Harvey and Willoughby turned up, and, after the usual greetings and congratulations, as Harvey was of course as full of his eland as I had been of mine, I said to him, "Well, and how did it compare with a buffalo?" To which he replied, "By Jove, you were right, a bull buffalo isn't in it!"

The eland is so well known (and can always be seen at the Zoo) that a description is unnecessary. In the wild state, however, they are larger and very much heavier than those in captivity; when old both the bulls and cows become a slaty-blue colour, from the skin showing through their scanty covering of hair. In these old beasts all vestige of the stripes is lost.

F. J. JACKSON.

IN PORTUGUESE WEST AFRICA

NATIVE ANGOLA NAMES, *Gunga* AND *Onevema*

The striped Livingstone's eland (*Taurotragus oryx livingstoni*) is widely dispersed over almost the whole of Angola. The veldt it seems most partial to is a thinly-timbered country, where it is very fond of feeding on the young shoots of certain trees, the bulls pulling down and breaking off large branches to get at the new and tender growth. This is the largest antelope found in this or any other part of Africa. The mature bull is a fine-looking animal, and can be at once distinguished from the cow by the difference in size and colour; when seen at a short distance he appears of a bluish colour, which is caused by the thinness of his coat, thus allowing the hide to show through. The cows have a reddish appearance. Their horns rise upwards, straight from the head, having a twist at the base, those of the bull being far more massive than are the cow's. One generally finds old bulls with short

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horns, the points being worn down. The bull stands some seventeen or eighteen hands high, and is of prodigious weight. There is a dark brown stripe of hair running down the centre of its back, the body having a slate-blue colour with a few light stripes passing downwards, as in the koodoo. The head of the full-grown bull has a large tuft of black hair, which extends from between the horns almost to the muzzle, the rest of the face being of a light gray colour. The hair on the neck is longer than on the rest of the body, and is of a light brown colour. The bull always carries a large quantity of fat, the heart being encased in a mass of fat, the whole weighing some 20 or 30 lbs. Although so large and heavy, he is on occasion very active, giving great bounds in the air. His favourite pace when disturbed is a trot, out of which he seldom breaks. The eland is a very soft-boned animal, and is not so tenacious of life as most of the African game. Elands are met with in Angola, sometimes in troops of sixty or seventy, and occasionally in even larger numbers ; but more often a troop will consist of from twelve to fifteen, mostly cows, very commonly one or two bulls being amongst them. It is often very difficult to get a shot at the bulls, by reason of the aggravating way they have of pushing themselves in amongst the cows. Very old bulls leave, or are driven from the troop altogether, and wander about by themselves in solitude. An eland is a great walker, and his long stride takes him over a great deal of ground, so that one has generally to go far on their spoor before coming up with these animals.

The hide of an eland has a peculiar odour, which is by no means unpleasant ; it on the neck exceeds an inch in thickness. The dried hide of a large bull, which I preserved as a museum specimen, weighed 80 lbs. The spoor is very similar to that of a buffalo, but rather neater in appearance ; the two need never be confused, as an eland, being longer in the body, and standing higher on the legs than the buffalo, takes a much lengthier stride. These animals are very keen of sight, and when on the spoor

the hunter must be continually on the look-out, otherwise the elands will see him and make off before being seen themselves.

G. W. PENRICE.

THE WEST AFRICAN ELAND (*Taurotragus derbianus*)

MANDINGO NAME, *finke-fanko*

This splendid eland, known also as the Derbian and Senegambian eland, is almost completely unknown, except by a few horns, to hunters and zoologists of the present day. When a former Earl of Derby maintained his magnificent collection of wild animals at Knowsley, living examples of this eland were to be found there. At the present time, and for many years, no living specimens have been known in Europe, nor do enterprising hunters seem to have penetrated Senegambia or the adjacent territories for the purpose of collecting trophies and skins of this immense antelope. The bulls of the West African eland are reputed to have been without the thick, dark, bushy frontal tuft so well known upon mature male elands in other parts of Africa. The largest known pair of horns of the common or of Livingstone's eland do not exceed a length of $35\frac{3}{16}$ inches; but there is a single horn of the West African eland in the Berlin Museum which measures no less than 40 inches in length, and has a circumference at base of $13\frac{1}{2}$ inches. Another pair in the Paris Museum measure $39\frac{3}{8}$ inches in length. The horns of this eland may be described as usually much stouter and bigger in circumference than those of the other two species. The animal itself is, it is believed, considerably larger than its congener in other parts of Africa. All specimens, whether of horns or of the living animal, that have hitherto reached Europe have come from the region of the River Gambia, where this eland is reported to be found usually in open country. It may be hoped and expected that within the next few years some fresh information concerning this magnificent eland will be contributed by enterprising Englishmen.

H. A. BRYDEN.

THE KOODOOS

Genus STREPSICEROS

Koodoos differ from elands not only by the absence of horns in the females, but likewise by the open spiral of at least two turns formed by those of the males. The tail is shorter and more bushy, not reaching to the hocks, and the neck is maned, while there may be a fringe to the throat. In colour the two sexes are alike, and the hair of the body is short. The skull, like that of the eland, has a deep depression in the forehead, and large unossified spaces in the neighbourhood of the nose-bones. The genus is represented by the two under-mentioned species, viz. :—

A. Size large, throat fringed.

1. Greater Kudu, or Koodoo (*Strepsiceros kudu*).

B. Size much smaller, throat smooth.

2. Lesser Kudu, or Koodoo (*Strepsiceros imberbis*).

THE KOODOO (*Strepsiceros kudu*)

IN SOUTH AND SOUTH CENTRAL AFRICA

Koodoo, the name by which one of the most beautiful animals in the whole world is known to European sportsmen, must be, I think, a word of Hottentot origin, since it is not Dutch, nor does it at all resemble any of the many equivalents for the same animal used by the various Bantu tribes inhabiting South and South Central Africa.

This splendid antelope was once widely distributed through the southern portion of the African continent. Two conditions are necessary to its existence—water and bush; the latter in the shape either of thickets or forests amongst which there is a good deal of scrubby undergrowth,

PLATE XIII

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|---------------------------------|---|
| 1. Greater Kudu Head. | 6. Situtunga Head (also Hoofs). |
| 2. Lesser Kudu Head. | 7. Bushbuck Head (Abyssinian race), also Hoofs. |
| 3. Bongo Head. | 8. Bushbuck Head (Western race). |
| 4. Nyala Head. | 9. Bushbuck Head (Eastern race). |
| 5. West African Situtunga Head. | 10. Bushbuck Head (Southern race.) |



FIELD
MUSEUM

growing either on rocky hillsides or on level ground. And wherever in South Africa these two conditions were fulfilled—with the single exception of the forests of the Knysna—I believe that koodoos were once to be found. In the early part of the present century, koodoos were numerous in many parts of the eastern province of the Cape Colony, but they had become exceedingly rare in those districts at the date of my first visit to South Africa in 1871. Since that time, thanks to wise legislation on the part of the Cape Government, and the loyal support given to the game-laws by the British and Dutch farmers, koodoos have lately very much increased in numbers in some of their old haunts within that territory ; and in 1895 I was informed by a well-known local sportsman in Port Elizabeth that there were supposed to be at least 800 koodoos in the district of Zwaart Ruggens alone. I do not know whether the first Europeans who travelled through the countries lying along the south-east coast of Africa between the St. Johns River and the Tugela met with any koodoos, but if not, it must have been because these animals had already been exterminated by the large native populations inhabiting Pondoland and Natal.

North of the Tugela River the koodoo was, until quite recently, a common animal along every river flowing into the Indian Ocean, as far north as the mouth of the Buzi along the coast line ; its range extending along the course of all such rivers, and the tributaries of all such rivers, up to the edge of the high open plateaus in which they take their rise.

On the northern bank of the Zambesi it is again found, and is abundant along the Shiré and its tributaries, and in all suitable localities throughout British Central Africa. But, curiously enough, it is unknown along the Pungwe River and its tributaries, and in fact throughout all the coast country between the Buzi and the Zambesi Rivers.

Fifty years ago koodoos were common in the country now known as the Orange Free State, along the course of the Vaal River and its tributaries, and when travelling through Griqualand in 1871 I saw the head and skin

of a freshly-killed koodoo at Campbellsdorp, and was assured that these antelopes were still not uncommon in the district, amongst the rocky scrub-covered hills which run parallel with the course of the Vaal River. The koodoos inhabiting the countries in the neighbourhood of the Vaal and Orange Rivers formed an isolated community separated from any others of their kind by vast expanses of country, which at the present day are unsuited to their requirements. How they came there is a matter for conjecture. Possibly their ancestors crossed ages ago during the rainy season from the head-waters of the Notwani River to the thorn thickets on the Upper Molopo (where koodoos were still to be found not many years ago), and worked their way all along that stream till they reached the banks of the Orange River. But the waters of the Molopo have long since ceased to reach the Orange River ; and so, as koodoos cannot cross a waterless tract of country, those of the species whose ancestors had crossed the desert along the banks of the former stream, at a time when Western South Africa was better watered than it is at the present day, became isolated from the rest of their kind, and were gradually driven eastwards by the Hottentot tribes living on the banks of the Orange River into the hilly country along the Vaal.

I have, however, been informed by my friend Mr. Fred Barber that he has met with koodoos in a part of the Southern Kalahari where there was absolutely no water. And he particularly told me that they were here living on the "Chama," or wild melons, and I imagine that these koodoos, having wandered out into the desert during the rainy season, and finding that, as the pools dried up, the melons supplied them with all the water they required, remained in the district. But since all animals, including domestic cattle, lions, leopards, and human beings, can support life on these wild melons, this is a special case, and does not put koodoos on the same plane with true desert animals, like gemsbucks, elands, and giraffes. It is possible that in certain districts of South Africa, koodoos have become to

a certain extent specialised, and are able to live in waterless tracts of country, but my own experience has led me to believe that these antelopes, like all the rest of the Tragelaphine group with which I am acquainted, are never found at a distance of more than a few miles from water.

According to my experience, koodoos are never found in open country devoid of bush, nor in country which is waterless, though otherwise suited to their wants. The sight of koodoos, Burchell's zebras, impala antelopes, and wart-hogs has always been to me a sure indication that water was not very far off. Koodoos are found in the neighbourhood of all the rivers of Western South Africa which run through tracts of desert waterless country, such as the Chobi, Tamalakan, Botletli, and the Notwani; and during the dry time of year it is hopeless to look for these animals at a distance of more than three or four miles from the river's bank. During the rainy season, however, when the desert pools hold water, koodoos wander far out into the Kalahari. In support of this view I may say that I have always found koodoos and impalas plentiful along the desert road between Sechelis and Bamangwato during the rainy season when the vleys¹ held water, but entirely absent along the same route when the pools were dry. At such times they had all retreated to the Notwani River. Koodoos are very fond of broken hilly country clothed with forest and bush, and intersected by streams flowing through thorn thickets and clusters of tall feathery acacia trees; but hills are not necessary to them, as they are plentiful along both banks of the Chobi, and many other rivers I know of, where there are no hills. Nowhere, I think, within recent times were koodoos more plentiful than along the Limpopo River and its many tributaries, such as the Marico, Macloutsie, Shashi, Tati, and other streams in South-Western Matabeleland, and all the largest horns I have seen have been obtained in these districts. I fancy that the koodoos themselves grow larger in the country watered by the Limpopo and its

¹ Pools and lakes formed during the rainy season.

tributaries than in the valley of the Zambesi, or along any of the rivers which flow into that river. This, however, is only a theory unsupported by any kind of statistical evidence except the average size of horns. These magnificent trophies have been known to attain to a length of 4 feet, measured in a straight line from point to base.

Indeed I saw and measured a pair which taped 48 and $48\frac{1}{2}$ inches respectively, the longest horn taping 63 inches over the outside curve.¹

The splendid animal that carried this magnificent pair of horns was one of three koodoos shot by a young Englishman during his first hunting trip, on one of the tributaries of the Limpopo. Probably neither Gordon-Cumming nor Cornwallis Harris ever saw such a koodoo, and many an old hunter has grown gray in the pursuit of South African game without ever encountering such a giant of his race. In some koodoo horns the spiral twist is much sharper than in others, and I think that the handsomest horns are those in which the curves are most pronounced. I have a pair in my own collection, the owner of which I shot near the Umfuli River in Mashunaland in 1880. These horns measure 64 inches over the curve, though they only tape 41 inches in a straight line from point to base; whilst my finest pair of horns (measured in a straight line from point to base, $45\frac{3}{8}$ inches) measure slightly less than 61 inches over the curve. In South Africa I should consider any pair of koodoo horns that measure 42 inches in a straight line from point to base a good pair, and anything over 44 inches exceedingly fine. Koodoo cows are hornless as a general rule, though now and again an individual is met with carrying a small pair of irregularly-shaped horns. Four instances of this kind have come under my notice, in two of which the horns seemed to be loose and not attached to the skull. One of these abnormal female koodoo heads is in my own collection. I found the original owner myself lying dead not far from Bamangwato, freshly killed by wild dogs. In this instance

¹ This head is now recorded in the latest edition of Mr. Rowland Ward's most useful book of horn measurements.

the horns are about an inch in diameter, smooth and round, and without the prominent keel always present in the horns of a koodoo bull; and whilst the one grows straight up in a sharp spiral twist to a length of 24 inches over the curve and $13\frac{1}{2}$ inches in a straight line from point to base, the other grows out at right angles to the head and measures 37 inches over the curve, but only tapes 10 inches in a straight line from point to base. Koodoos are essentially bush-loving animals, and during the greater part of the year they are seldom to be met with except in thick cover. Towards the end of the dry season, however, in September, October, and November, they often wander from their usual haunts in search of young green grass, and at such times may often be encountered in open forest country, intersected with broad grassy glades. In such situations they can be successfully hunted on horseback. The cows I have always found both fleet and enduring. They run very lightly and easily, bounding over fallen timber or other obstacles without any apparent effort. Old koodoo bulls, however, run heavily, and if met with in ground where a horse can gallop at his utmost speed for a mile or so, can often, though by no means always, be overtaken within that distance. They would not, however, be run to a standstill in such a distance, but only outpaced, and as the horseman ranged alongside, would swerve off and continue their flight, always making for rough ground or thick cover, and in such places no horse can live with them.

So far as my own experience goes, koodoos never congregate together at any time of year in very large herds. During the rainy period and the early part of the dry season, they are usually to be met with in little parties of less than ten, and I have often come across a single cow alone with her last year's calf, or two, three or four cows together, sometimes accompanied by a bull, though these latter are usually alone. As with other antelopes, however, during the latter part of the dry season the little scattered bands of koodoos collect together, forming fair-sized though

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never very large herds. The largest number of these antelopes I ever saw together was on 31st August 1880, on the Upper Umfuli River in Mashunaland. I first saw two old bulls, which, on being disturbed, joined a herd of at least twenty cows, besides several fine young bulls with horns from 2 to nearly 3 feet in length, making a herd of nearly thirty koodoos altogether. If my memory serves me right, there was not a single small calf with any of these cows, and, as a rule, I think they do not commence to drop their calves till late in October. Old koodoo bulls are, as a rule, met with alone, or two, three, four, or five together. I have on many occasions seen the latter number consorting together towards the end of the dry season, and upon one occasion I saw eight of these magnificent creatures—all of them old males—in one band. This was on the southern bank of the Chobi River in September 1874. It was the afternoon of a scorching hot day, and I was sitting in a canoe and being paddled across the placid waters of a broad lagoon formed by the overflow from the river, when I caught sight of first one, then another koodoo bull, and soon counted eight of them. But little shooting had then been done in this part of the country, and these ordinarily suspicious and retiring antelopes had come down to drink in the early afternoon. When I first saw them they had just slaked their thirst and were walking slowly along the water's edge, one behind the other, in the shade of some tall acacia trees, beneath which there was no bush or undergrowth to hide them from our view. The wind was off the land, so, whispering to the Kafirs not to make the slightest noise, I had the canoe paddled slowly past within fifty yards of them. As we glided silently by they halted, and stood gazing at us, their great ears cocked, and the fringes of long brown hair hanging beneath their throats moving gently in the light breeze. They were all of them apparently full grown and carried splendid heads, but three amongst them excelled their fellows in this respect, and it cost me an effort to refrain from slaying one of these. I did not, being well supplied, however,

with meat and not wishing to delay my journey, and so we slowly passed out of sight; but the picture of those eight splendid beasts standing motionless on the water's edge, beneath the tall acacias, lives with me still, as does the image of many another similar scene, which the spread of civilisation and the effects of the late terrible plague of rinderpest make it impossible that any man can ever see again in Southern Africa.

Of all the animals I have ever met with, I think the koodoo is the most timid, inoffensive, and least capable of defending itself. I have never seen one make any attempt to use its large horns in self-defence when attacked by dogs, or even kick as an eland will do at its tormentors. The bulls doubtless butt at one another when disputing for the possession of the females, but I doubt if they often do one another any serious damage.

The foregoing notes on the koodoo embody my experience of that animal during the time of my residence in the interior of South Africa—that is, from 1871 to 1896; but I have reason to believe that since the latter date, the terrible scourge of rinderpest has worked such dreadful havoc amongst the koodoos, that in many districts in which these splendid antelopes were still numerous in 1895, they have now absolutely ceased to exist. I trust that the reports I have received have been somewhat exaggerated, but I fear there can be no doubt that the horrible plague which has been slowly sweeping through Africa during the last ten years has found the noble-looking koodoo more susceptible to its subtle poison than any other animal, wild or domestic, that has been subjected to its baneful influence.

F. C. SELOUS.

DISTRIBUTION NORTH OF THE ZAMBESI TO ABYSSINIA, EXCLUDING
SOMALILAND

From the Zambesi northwards until Abyssinia is reached, the distribution of the koodoo is peculiar, large areas being entirely unfrequented by it;

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and it is everywhere much rarer than in South Africa. Up the Majili River, which runs into the Zambesi from the north near Shesheke, Mr. Pirie met with the koodoo, but in very small numbers. Eastward again, and close to the Zambesi, Livingstone mentions coming across koodoos "in abundance," but this was quite on the banks of the river, and the only place north of this river where any one seems to have found them in any numbers (*Missionary Travels*, p. 575).

Koodoos were seen by Elton on the west side of the Shiré River, near the Lesungwe. Mr. Crawshay says it is a widely distributed species through the whole of Nyasaland, especially in the rugged wooded highlands away from the haunts of men; and he gives many localities where he has either personally met with it, or is certain it exists, from Cape Maclear at the south end of Lake Nyasa, along the western shores of that sheet of water. Farther to the west, in the district of Lakes Mweru and Bangweolo, it appears to be unknown, but this may probably arise from the country being quite unsuited to its habits.

Little has been written about the country between Lake Nyasa and Ujiji or Lake Tanganyika, or of the country lying due east of Nyasa, so that there is nothing known about the distribution of the koodoo in these districts. Mr. Stanley shot one in Ukonongo on the road to Ujiji.¹ Speke and Grant saw some in Ugojo and Ukuni in E. Long. 33°, and though no specimens were actually obtained, they were certain of their identification.² No other traveller seems to have met with or mentioned this species from these countries, so that they are evidently very rare and local.

In British East Africa and its adjoining "Sphere of Influence" the koodoo is very rare and even still more local. From Mombasa the first locality for this fine game animal is in the Teita district. Mr. Jackson says, "There are always a few in the Teita country west of Ndara and

¹ *How I Found Livingstone*, p. 341.

² *P.Z.S.* 1864, p. 105.

Kissigao, and on the banks of the Tzavo, down which it ranges from the head-waters to the Sahaki, and then north up the Athi River.”¹

At one of our camps in the Teita district a native was smoking the usual African pipe, but in this instance it was made from a koodoo's horn, and this attracted attention at once from the rarity of the animal, which must have been killed in the neighbourhood.

Count Teleki shot two greater koodoos near what is called on the map which accompanies his book (*Discovery by Count Teleki of Lakes Rudolf and Stephanie*) Lake Hannington, a few miles to the south of Lake Baringo. Mr. A. H. Neumann found a skull at one of his camps under the Jambeni range, at the head of the Mackenzie River, which runs into the Tana; others were seen by him, and also a good deal of their spoor on the west side of Mount Nyiro, at the south end of Lake Rudolf. Dr. Donaldson Smith saw a single koodoo at a place called El Madu in about 41° E. Long. and 4° N. Lat.

Schweinfurth (*Heart of Africa*) never mentions the koodoo in any of his wanderings among the western tributaries of the Nile, and it is doubtful if it occurs anywhere to the west of the main river. It is, or was at least, very abundant in Abyssinia, on the banks of the Settik, as late as 1878.²

T. E. BUCKLEY.

IN SOMALILAND

SOMALI NAME, *Godir*

This is the largest of Somali antelopes, and no prettier sight can be seen than an old bull standing out against the sky-line on the top of the hills. I never saw the koodoo away from the Golis range, although I have seen

¹ Badminton Library, *Big Game Shooting*, vol. i. p. 304.

² It is found also in Angola, Portuguese West Africa; Mr. G. W. Penrice having in recent years shot many specimens.—Ed.

them at the foot of those hills. I have seen their tracks a mile or two away from the hills in the maritime plain, where I fancy they may stray during the night. As there is far more grass and vegetation on the hills than on the plain, it is apparently not for food that they go. One bull I wounded in the hills made for the plain, and was eventually killed a good way from the hills. The male looks to me as big as a sambar, say $13\frac{1}{2}$ hands. In colour he is iron-gray. An old one shot by me had three white stripes down its sides, and one across its quarters. The pictures one sees in books of a koodoo bull generally give him nine stripes or more. Mr. Selous says the koodoo is marked with eight or nine white stripes. Harris, in *Wild Sports of Southern Africa*, gives it four or six lines on the side and four more over the croup. Be that as it may, the bull I refer to, whose horns were just under 3 feet long in a straight line from base to tip, had four stripes only. A standing mane, which is longest on the neck and withers, runs along the whole length of the back. It is of a white colour, variegated with black. A long fringe of black and white hair hangs down the whole length of the throat. The koodoo, like some other antelopes of the Tragelaphine group, is marked with white spots on the cheek. There are three such spots on each cheek, and two white lines, one from the corner of each eye, meet on the face. It has no sub-orbital gland. The males, when young, are the same colour as the females, viz. a yellowish-brown; they soon, I think, assume the gray coat, as I saw a koodoo whose horns did not appear to be more than about a foot long whose fore-quarters were gray while his hind-quarters were brown. I watched him for a long time on the bare side of a perpendicular hill. The females are hornless. The largest herd I saw was one of twelve, one fine bull and eleven females. The more usual size of a herd is half a dozen or less. A herd of females without any bull with them is often seen. If a bull is alone he is usually a good one. The koodoo's horns are very like those of a markhor in shape. Stalking koodoo is hard work. The precipitous ravines and the denseness of the thickets to which they retire soon after dawn render success very

unlikely if the animal keeps to the same side of the ravine you are on, as it is impossible to see him. Should, however, he be on the other side of the ravine, or bolt up the opposite hill-face, he is by no means difficult shooting. At dawn, or soon after, and in the evening, koodoo may be met with on the more open flat tracts on the hills, but after the sun is well up the place to look for them is the ravines. Dr. Livingstone mentions the koodoo as one of the antelopes that can exist without water. Judging from the paucity of their tracks at the water-holes in the hills, I formed the opinion that the Somali koodoo, though they appeared to drink regularly, do not require to drink every day. The young are, I think, born about November. I had a young male a few days old that was caught in that month. When alarmed, the koodoo barks loudly. The sound is similar to the bark of the sambar. The meat is good, and the Somalis prefer it to that of any other antelope. The largest Somali koodoo head mentioned in Rowland Ward's *Records of Big Game* measures $39\frac{1}{2}$ inches in a straight line, and 57 inches over the curve.

J. D. INVERARITY.

THE LESSER KOODOO (*Strepsiceros imberbis*)

Anderio, SOMETIMES *Godir*, OF SOMALIS ; *Sara* OF ABYSSINIANS ; *Kungu*
OF SWAHILIS

The lesser koodoo is a remarkably handsome animal, being of a blue-gray colour, with numerous white stripes running down its sides from shoulder to tail; one shot by me had fourteen stripes on either side, from 2 to 4 inches apart. Like the greater koodoo, it has a standing mane of white hair along the neck and back, longest on the neck and shoulders. It has a white patch on the lower part of its neck, a white line from the corner of each eye, meeting on the face, and white spots on the cheeks. Unlike the greater koodoo, it has no fringe of hair on the throat. It has no sub-orbital gland.

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Horns over 20 inches in length in a straight line may be considered good, 24 to 27 inches very good. They have not so circular a sweep as a greater koodoo's horn. The females are hornless; they and the young males are of a yellowish-brown colour, and the stripes on their skins do not appear to be of so pure a white as the old bucks'. I have only seen them, however, on living animals some yards off. The lesser koodoo is found in fair numbers along the foot of the Golis range and in the thick bush that grows along the wadys or watercourses that seam the maritime plain near the hills. I also saw a good buck by himself on the plateau to the south of the Golis. This animal was certainly 30 miles, if not more, from any water, which seems to show that the lesser koodoo, like many other African antelopes, can do without water. They are said to be common on the Webbi River. As a rule, the lesser koodoo is found near water when the jungle is dense, especially where there is a thick undergrowth of the aloe (Somali "hig"). As one makes one's way through such a thicket, a loud bark close by and a glimpse of striped hide and bushy tail proclaim the presence of one of these animals. They appeared to me not to run very far, since I more than once soon heard again the bark of one which I believed to be the same animal, as I was tracking one already disturbed. They will let you approach within a few yards of them in the thickets before they start off. It is necessary to be alert and quick in firing, as you do not see them till they are off, and they are out of sight at once. I never saw many together—a buck and a doe or four or five does is the rule. I saw young fawns in November and December. The Somali sometimes call the lesser koodoo "Godir," which is their name for the greater koodoo. The longest horn mentioned in Ward's *Records of Big Game* is one of $26\frac{1}{2}$ inches in a straight line. Major Swayne mentions one between 27 and 28 inches in *Seventeen Trips through Somaliland*.

J. D. INVERARITY.

THE BUSHBUCKS

Genus TRAGELAPHUS

The harnessed antelopes, or bushbucks, are so closely allied to the kudus that there may be doubts as to the propriety of separating them generically. The spiral of the horns of the males, is however, very often shorter, and the keel on their front surface less developed. Very generally the sexes are strikingly unlike in colour, the hair of the body is often long and coarse, and the throat may be fringed with long hairs. The depression in the fore part of the skull is generally shallower than in the kudus, and the unossified spaces in the neighbourhood of the nose-bones are smaller.

The species may be arranged as follows :—

A. Size large.*a.* Hoofs normal.

1. The Bongo (*T. euryceros*).
2. The Nyala (*T. angasi*).

b. Hoofs elongated.

3. West African Bushbuck (*T. gratus*).
4. Situtunga (*T. spekei*).

B. Size small.

5. Lesser Bushbuck (*T. scriptus*)

The last is represented by several local races distinguished by colour and markings.

The foregoing are the species recognised up to 1898, in which year two other specific names were proposed ; but before definitely recognising them, further investigations seem advisable. The long-hoofed East African situtunga (*T. spekei*) was named by Mr. Sclater in 1864 ; it is devoid of spots or stripes, but further evidence is required as to the coloration of the two sexes. The West African situtunga (*T. gratus*) was named

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by the same gentleman in 1880, on the evidence of a female skin from the Gaboon, with long hoofs. In 1883 he figured a male and female living in the Paris Zoological Gardens, which he referred to the same species. The male is chocolate-slaty and the female bright chestnut, both being profusely spotted and striped with white, and having long hoofs. Reference is made to another male in the British Museum, which is somewhat less spotted and is rufous in colour, the latter feature being due to immaturity. In 1883 Dr. Rochebrune described Senegambian specimens as *T. gratus*; but in 1899 these were assigned by Dr. Trouessart to a new species (*T. obscurus*) on account of their shorter hoofs. The Paris specimens described by Sir Harry Johnston in the sequel are stated to have shorter hoofs than the type example, and thus seem to indicate that the length of these appendages is variable, probably according to the nature of the ground on which the animal dwells. In 1899 Mr. Walter Rothschild stated that he regarded *T. gratus* merely as a sub-species of *T. spekei*, but that a large bushbuck from the Zambesi appeared distinct from the latter. For this large Zambesi form, which is long-hoofed, the name of *T. selousi* was suggested. In addition to its much larger horns, this *T. selousi* is stated to differ from *T. spekei* by the two sexes being coloured alike. It must, however, be remembered that in *T. gratus* the slaty hue of the bucks is not assumed till well on in life, and also that the British Museum, at least, has no specimens to show the sexual coloration of *T. spekei*.

THE BONGO (*Tragelaphus euryceros*)

This fine animal, sometimes referred to as the broad-horned antelope, is a native of West Africa, its range extending "from Liberia, through Fanti, to the Ashkankolu Mountains and the Gaboon." It is, from the nature of its habitat, very little, if at all, known to the British sportsman.

This is quite the biggest of the harnessed antelopes, standing as much as 4 feet in height. The rams are bright chestnut in colour, beautifully marked with five white stripes running transversely, and a white crescent upon the breast. Unlike the inyala, this antelope is short and smooth of coat and has no neck-fringe. The face is marked with a pair of white spots beneath the eyes. The horns are very handsome; strong, stout, with a fine twist, and becoming yellowish—manifestly from rubbing and usage—towards the points. The finest recorded pair, now in the possession of Sir Edmund Loder, measure $32\frac{3}{4}$ inches over the curve; $27\frac{1}{4}$ in a straight line. The well-known explorer, Du Chaillu, was the first to obtain specimens of this antelope, from the Gaboon country.

H. A. BRYDEN.

THE INYALA OR NYALA (*Tragelaphus angasi*)

Inyala OF ZULU

The range of this handsome species is very limited, and, so far as our present knowledge goes, entirely confined to a narrow strip of country on the south-east coast of Africa and a small district on the River Shiré, in British Central Africa. The inyala was first described from the skins of specimens freshly killed by some Boer hunters by Mr. Douglas Angas, by whom it was named after his father, *Tragelaphus angasi*, or Angas's bush-buck, though it is more generally known by its native Zulu name of inyala. Mr. Angas first met with this beautiful antelope on the northern shores of St. Lucia Bay, in latitude 28 degrees south, which seems to have been the extreme southern limit of its range. From this point northwards it appears to have once existed in all the low-lying coast country, along the banks of all the rivers flowing into the Indian Ocean, as far as the Sabi, and, following the Limpopo, penetrated a good distance inland, as I know of a male and female inyala having been shot on the Lower Oliphants

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River near its junction with that stream. Between the Sabi and the Zambesi it has not yet been met with, though it has been recently discovered in Nyasaland to the north of the Zambesi.

Concerning its distribution in this part of the country Mr. A. Sharpe writes : "This antelope is found in a piece of thick scrubby country bordering the Moanza, which enters the Shiré on the right bank near the Murchison cataracts. I have never heard of it in any other part of Nyasaland."

Whilst on the subject of the distribution of the inyala in Nyasaland, I think it will not be out of place to quote a few passages from an article contributed by myself to the *Field* on the subject of this antelope in 1897, which run as follows :—

"Although the fact of the existence of the inyala in Nyasaland was only established as lately as 1891, I think that a specimen of this antelope was undoubtedly shot near Cape Maclear, on the shores of Lake Nyasa itself (where it is not now known to exist), by the late Captain Faulkner in 1866. In his narrative of a journey to Lake Nyasa in connection with the Livingstone search expedition, sent out from England under the command of Lieutenant Young in that year, Captain Faulkner has written in a little-known work entitled *Elephant Haunts* :—

"‘I had walked a long way without seeing anything, and as it was getting late, was about returning, when I saw a beautiful antelope feeding near a narrow strip of swamp.’ This antelope he killed, and then described in the following words : ‘He was in splendid condition, and a distinctly different animal from any I had hitherto seen ; height at shoulder 3 feet 4 inches ; spiral horns 21 inches long, slightly curved forward ; skin of a grayish colour, and covered with white spots ; belly white.’” Commenting upon this description of Captain Faulkner’s of an antelope entirely new to him, I wrote : “Now either this antelope shot in 1866 on the shores of Lake Nyasa was an inyala, or it belonged to a species still unknown to

science. It could not have been a bushbuck, the size of the animal and the length of its horns preclude that possibility. Besides, this latter antelope is common on the Shiré, and a careful perusal of Captain Faulkner's pages shows him to have been well acquainted with it. Had Captain Faulkner described his unidentified specimen as 'of a grayish colour, and covered with white stripes, or white spots and stripes,' instead of with white spots only, the whole description, meagre though it is, would have been applicable to a male inyala, which the length and shape of the horns and the standing height at the shoulder seem to show that it was. If not, there must exist in that district a nearly allied species still unknown to science, which I do not think is likely, though it would be worth while to make careful inquiries amongst the natives living near Cape Maclear as to all the antelopes of the bushbuck tribe with spiral horns with which they are acquainted in order to clear up the mystery."

Such inquiries have been made, I believe, by Mr. A. Sharpe, but without eliciting any information whatever on the subject, so that this mystery still remains unsolved.

The inyala is an inhabitant of dense thickets in the immediate neighbourhood of a river or lagoon, and is never found either in open country or far away from water. Baldwin speaks of these antelopes as having been numerous in Amatongaland, to the south of Delagoa Bay, in 1854, and says that the females might then often be seen in large herds. At the present day I think I am correct in stating that the inyala can nowhere be seen in herds, except perhaps in certain districts of Zululand, where it has been rigidly protected of late years. Mr. Whitaker, a trader, who had lived for many years on the Tembe River to the south of Delagoa Bay, in the midst of country where these antelopes are still fairly common, told me that he had never seen more than five inyalas together, and from my own small experience of them in September and October 1896, I should have thought that they were not gregarious at all like koodoos, but

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lived either alone or in pairs, sometimes accompanied by a last year's fawn, like the bushbuck and situtunga. At night they feed out into open spaces in the bush, but are never found in such places between daylight and dark, as they have been so much persecuted by the natives that they have grown very wary and cunning. In the jungles between the Usutu and Pongolo Rivers in Amatongaland, where I hunted for inyalas in 1896, there appeared to be no other game of any kind, with the exception of a very few bushbucks and a few wild pigs (bush-pigs). As the country seemed admirably suited for bushbucks, I do not know how to account for their scarcity in this district, except on the supposition that they are driven out of the jungles frequented by the inyalas by these more powerful, though nearly allied animals. Inyala rams are said by the natives to become very savage when wounded, and sometimes to charge fiercely.

The type specimens of the inyala originally obtained by Mr. Angas are described as follows :—

“Adult male 7 feet 6 inches in total length, and 3 feet 4 inches high at the shoulder. Though elegant in form, and with much of the grace of the solitary koodoo, the robust and shaggy aspect of the male bears considerable resemblance to that of the goat. Legs clean, hoofs pointed and black, with two oval cream-coloured spots in front of each fetlock immediately above the hoof. Horns of the specimen in question 1 foot 10 inches long, twisted and sublyrate, very similar to those of the bushbuck, but rather more spiral; very sharp polished extremities of a pale straw-colour; rest of horns brownish-black, deeply ridged from the forehead to about half the length of the horn. Prevailing colour grayish-black, tinged with purplish-brown and ochre; on the neck, flanks, and cheeks marked with several white stripes like the koodoo. Forehead brilliant sienna-brown, almost approaching to orange; mane black down the neck, and white from the withers to the insertion of the tail; ears 8 inches long, oval, rufous, tipped with black, and fringed inside with white hairs. A pale

ochreous circle round the eyes, which are connected by two white spots, forming an arrow-shaped mark on a black ground ; nose black ; a white spot on each side of the upper lip ; chin and gullet white ; and three white marks under each eye ; neck covered with long shaggy hair, extending also under the belly and fringing the haunches to the knees ; two white spots on the flanks, and a patch of long white hair on the interior portion of the thigh, a white tuft under the belly, and another on the dewlap. On the outer side of the fore-legs is a black patch above the knee, surrounded by three white spots ; legs below the knee bright rufous colour ; tail 1 foot 8 inches long."

This most detailed description is, I think, that of an animal not fully adult, as in the three full-grown male inyalas which I saw in the flesh all the buff, ochreous, and orange tints described by Mr. Angas had turned to grayish-black except to a slight extent below the knees, whilst none of them had any white stripes on the cheek or neck ; and as the general ground-colour of the young male is reddish-brown like the female, and that of a full-grown male grayish-black, it goes without saying that as the young animal grows from kidhood to maturity the former colour gradually gives place to the latter, till in a very old ram there is no buff or ochre left except on the legs below the knees. Mr. Angas's description of the type specimen of the female inyala is as follows :—

"Smaller than the male, and without horns ; total length 6 feet ; nose to insertion of ear 10 inches ; length of ear $6\frac{1}{2}$ inches ; height from fore-feet to shoulder 2 feet 9 inches ; tail 1 foot 3 inches in length ; general colour of body rich red-brown, becoming very pale on the belly and lower parts and white inside the thighs ; a black dorsal ridge of bristly hair extends from the back of the crown to the tail ; nose black ; the white spots on various parts of the body nearly resembling those of the male, only the white stripes on both sides are more numerous and clearly defined, amounting to twelve or thirteen in number ; tail rufous above and white

below, tipped with black." No description of an adult female inyala could be more accurate than this. The average length of inyala horns is about 22 inches in a straight line from point to base, and 25 or 26 inches when measured along the front curve, but they have been known to attain to a length of over 29 inches on the curve. Owing to the protection which has been afforded them of late years by the Government in Zululand, inyalas have recently increased in that territory, but in Amatongaland, and everywhere else in South-East Africa where these antelopes exist, they are being very rapidly exterminated by the natives; and as the rinderpest has also lately worked sad havoc amongst them, especially in Zululand, it is quite certain that this beautiful species will become very rare, if not actually extinct, in the coming century. There are at present two good mounted specimens of the inyala—male and female—in the Mammalia Gallery of the Natural History Museum at South Kensington, as well as several skulls and pairs of horns.

F. C. SELOUS.

IN NYASALAND

NATIVE NAME, *Bō*

The inyala (*Tragelaphus angasi*) is rare in British Central Africa. The only district in which it has yet been found is that bordering on the Shiré River, from Port Herald up to the Murchison Cataracts. It keeps mostly to dense, thorny thickets, and is very difficult to find. The horns are rather like those of the bushbuck, but larger and more spiral; something, in fact, between those of a koodoo and a bushbuck. It is a beautiful and graceful antelope. Sir Harry Johnston thus describes the colouring: "The female a deep chestnut, with narrow stripes and spots in pure white, and a black line along the middle of the back from the neck to the base of the tail; the male purplish-gray with white markings." The measurements of the only inyala head I have are as follows:—

Length of horn round curve	24 inches
Straight line from tip to base of horn	20 "
Distance apart of horn-tips	4½ "
Distance apart in widest place	9½ "

This is but a moderate-sized head. Under the neck the hair is long ; down the neck and all along the backbone to the tail is a ridge of long hair ; on the rump the hair is exceptionally long. I once measured a skin, the hair of which reached $9\frac{1}{2}$ inches.

Owing to the inyala being found within so restricted an area in British Central Africa (about 90 miles by 30), few specimens have been obtained. Several fair ones were, however, secured by officers on H.M. Zambesi gunboats, near to Chiromo on the Shiré River. They were not known to exist in this part of Africa till 1891, when I saw the skin of one on the floor of a planter's house at Blantyre, and sent it home to Dr. Sclater, who at once pronounced it to be the inyala.

From the description given by the late Captain Faulkner of an antelope shot by him on the south shore of Lake Nyasa, Mr. Selous was recently led to think that possibly the inyala might be found as far north as the lake. Whether, however, it may have been found there or not at the time when Captain Faulkner was in Nyasaland, after careful inquiries I have made, and from my own experience of the locality, I think I can say positively that at the present date the inyala is not found in Nyasaland north of the 15th degree of south latitude.

It is most plentiful near to the streams which run into the Shiré River, on its right bank, between Chikwawa and Chiromo, where it frequents the dense, jungly thickets, known by natives as "msitu," full of thorns. It only leaves these in the early morning and in the evening to feed. During the rains, as soon as the grass has reached a height of 5 or 6 feet, inyala are found outside these thickets, but never far from them.

ALFRED SHARPE.

IN ZULULAND

Inyala is the Zulu name of this antelope, and has been adopted as its English title. Heavy in proportion to its size,¹ it is, like all the members of its genus, comparatively short-legged and more compact-looking than most antelopes, built for life in tangled woods and for activity in threading the thickets it inhabits rather than for speed in the open. The male has rather thick, spiral horns, with a single twist, measuring, when mature, from about 24 inches up to nearly 30 inches on the curve. Those of old rams have an outward turn at the tips.

Northern Zululand, whence it was first described, is the most southerly region included in the range of this very local species, and it is also, I believe, the part where it is most plentiful. It is not, and never was, found south of the neighbourhood of St. Lucia Lake, which is situated in the Lower Umfolozi division. From there northwards it is found, in suitable localities, in the country lying between the U'Bombo range and the coast. This is where Baldwin shot it, and it was here that, somewhat later, its pursuit was described by Drummond as being equivalent to fever.

It was in the U'Bombo district (while stationed on the range as magistrate of that division) that I had the opportunity of observing and studying the habits of this most interesting antelope. It is there not uncommon in the dense bush bordering the course of the Umkuzi River, just below where it passes through the mountains, which was within easy reach of the magistracy, and in the extensive woods near Lake Sibai, at the farthest corner of the district, where my duties occasionally took me.

I have noticed various species singled out by different writers of experience as the most beautiful of antelopes—*e.g.* the koodoo, the sable antelope, etc. ; but for my own part my choice would be the inyala if asked

¹ In Rowland Ward's *Records of Big Game* the height at shoulder is given as about 3 feet 6 inches. I have no measurements taken by myself.

to select the one I considered the handsomest of all. Whether in regard to its perfect symmetry, its rich and exquisitely contrasted colouring, or its graceful movements, it is, in my estimation, surpassed by no other kind with which I am familiar. It is a lovely sight to see the beautifully modelled head of a male, surmounted by its gracefully curved lyrate horns, appear in a gap—as one occasionally may when creeping about those



FIG. 39.—Inyala (*Tragelaphus angasi*).

gamey coverts,—its body being screened by vegetation, the deep chocolate-brown of its face relieved by spots of white, and finished by a shaking fringe of beard below the neck, and the whole framed in woodland greenery. Or when surprised on the outskirts of his dense fastnesses, where the more scattered bushes allow of glimpses of his flying form, how ineffably enchanting is the effect of that instantaneous impression, as, like a flash of colour,—the bright chestnut patches on his legs gleaming in contrast with his dark, white-striped body with shaggy throat and thighs—he leaps over

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bushes, his horns laid back and nose outstretched, to disappear into the recesses of the cover. What strength is depicted in that sturdy frame with its rounded outlines, and how suggestive of springy activity are those delicately tapered limbs ! Or look at that sleek doe, her glossy coat of brilliant red, barred with many pure white transverse lines, glistening with the early morning sun shining full upon her side ; can anything be more beautiful ?

Like its relative the bushbuck (to which it seems to occupy much the same relationship as the koodoo to the lesser koodoo), the inyala is essentially a dweller in thick woods, and, also like it (and I suppose the whole genus), feeds almost exclusively on leaves and weeds, with sometimes wild fruits and berries ; eating little grass. Again, like the bushbuck, it is not found very far from water (though it does stray farther afield than that thirsty little creature) ; but, unlike this smaller congener, it never frequents hills, its favourite haunts being the dense covers in the neighbourhood of rivers and lakes. In the daytime it lies concealed in their shady depths, and only ventures forth at night ; or, where not much disturbed, it may sometimes be found browsing in the more open glades just outside their borders during the early morning or late afternoon.

Mr. Selous found no bushbuck in the country where he shot his specimens, and inferred that the inyalas might drive the smaller species away. This is by no means the case, however, in Zululand ; there the two are found inhabiting the same covers. I had abundant evidence of this on the Umkuzi River, where both kinds were plentiful. I frequently shot bushbuck and saw inyala in the same patch of bush during the same ramble, and the tracks of both were everywhere. I have even once killed a young inyala ram by mistake for a bushbuck in thick cover, though a full-grown male might be almost more readily mistaken for a young koodoo, which latter species is also found in the same locality. There is a very great similarity in the markings of the inyala and lesser koodoo, as well as a much closer approximation in size, though the former is a more

compactly built beast ; but this last-named species is an inhabitant of a totally different part of East Africa.

The inyala differs as to its habits from the smaller bushbuck in that it is gregarious, like the koodoos. At the present day the herds are small, though the natives assured me that formerly, before the introduction of guns, they were commonly much larger. Sometimes the does with their young and the immature males are in herds by themselves, the adult rams living singly or associating together after the manner of the other gregarious antelopes. At other times one big ram accompanies a herd of does. A doe is, I think, only found alone when she has a newly-born fawn. This happens in July or August.

On the question of the average size of the herds of inyala, I will quote my friend Mr. C. R. Saunders, C.M.G., now Resident Commissioner of Zululand, himself a keen sportsman, who has probably had more opportunities of observing this rare antelope than any one now living, and who has kindly given me some interesting particulars about so little known an animal. In reply to my request for information on some points as the result of his experience, he writes :—

“The largest number of inyala I have seen in one herd is sixteen, of which four were big rams. The herds usually vary from eight to that number. When they have not been much disturbed you seldom find a doe alone, although the old rams are so found ; but at certain seasons of the year when the males separate from the females the former go in small troops, as many as eight being seen together. . . . Having shot a good many, I consider it the easiest animal in these parts to shoot. On one occasion I stalked up to within 60 yards of five rams in the open, shot one whilst I was lying down, and immediately rose to my feet, thinking the others would make off ; but they stood watching the one that had fallen. I then shot a second with the left barrel. The three remaining still stood, and I could have shot the lot had I wished to, as they only moved off on my

walking towards them. I have had very similar experiences with them on other occasions. When brought to bay with dogs they are about the most awkward antelope to tackle we have, being very quick and vicious."¹

But though easy to shoot in favourable situations, in parts where it has been much persecuted by the natives this buck is very wary ; and, keeping as it does during the hours of daylight to the dense cover, it becomes difficult to get a shot at. For, let the hunter prowl ever so cautiously through its dark retreats, it is impossible, except by a stroke of luck, to get more than a momentary glimpse of their occupant, which has been silently listening to his approach in thickets where one cannot see beyond a few yards. Under such circumstances one can seldom get more than a snap-shot at the cunning old buck as he projects himself into openings that seem almost as impossible for his sturdy form to pass through as the needle's eye for the proverbial camel, or creeps under briary tunnels so low that but for the evidence of his spoor, one could not believe that he had really passed that way.

The natives' method of trapping these bush-dwelling bucks is by enclosing some much-frequented patch of cover in the heart of their favourite haunts with a fence of brushwood, starting from the bank of the river and returning to it in a semicircle. In this fence are left little gaps at short intervals, and at each gap is set a snare. The snare is a stout cord, made of tough fibre carefully prepared and neatly laid up, with a loop at the end to form a slip-knot. The other end is made fast to a strong growing sapling, which is then bent down as a spring over the gap and held so by a little wooden bar (fastened to a smaller cord attached to the noose) being inserted in a peg in the ground in such a manner that, on any animal treading on some twigs placed artfully across, the spring will be released and, acting on the noose, which had been carefully laid in a circle on the path, will hoist the leg of the animal disturbing it high in the air. So

¹ I regret to hear from Mr. Saunders that the inyala is among the species of game that have suffered most heavily from the rinderpest plague that has recently swept through Zululand.

helpless is a beast in this position, held up by a stiff sapling, that even a koodoo is, I was assured, an easy prey when so caught.

The inyala is excellent eating, even the rams being very good tender meat, in this respect, as in many others, resembling the lesser koodoo. The cry of alarm is a sonorous bark, emitted singly, similar to that of the bushbuck, but deeper toned.

A. H. NEUMANN.

THE WEST AFRICAN SITUTUNGA (*Tragelaphus gratus*)¹

Kawe OF THE NORTHERN PART OF THE CAMEROONS; Mburi IN THE DUALA TONGUE OF THE CAMEROONS RIVER; Nkaya AND Nkoko OF THE CONGO COUNTRIES.

This beautiful creature is nearest of kin to the situtunga (*Tragelaphus spekei*), but is also closely related to the inyala (*Tragelaphus angasi*) of South-East and East Africa, and differs from the latter but little save in some details of coloration and in having the hoofs longer. It is sometimes called the large harnessed antelope—not a particularly apt designation. Mr. Sclater, who first described this animal in 1880, gave it the specific name of *gratus* from its pleasing appearance.

It is rather a large animal, the full-grown male measuring quite 3 feet 6 inches in height at the shoulder. The contour of the body is more like that of the bushbuck than the ox-like appearance of either the koodoo, the eland, or the broad-horned bushbuck (*T. euryceros*).² The fur is long, especially in the adult male, which is almost as hairy in appearance as the waterbuck. The colour of the females and young is bright chestnut-yellow. This darkens in the adult male to uniform deep chocolate, the chocolate passing into black here and there, and into gray in other places. The characteristic tragelaphine white markings are as follows—On either

¹ A form of this situtunga, noticeable for its shorter hoofs, has been separated as *Tragelaphus obscurus*. This form is depicted by Sir H. H. Johnston on p. 469. See also Mr. Lydekker's notes on Situtunga on pp. 453, 454.—ED.

² The Bongo.—ED.

side of the bridge of the nose, starting from the corner of the tear-gland, is a semicircular white patch. Although these two white patches converge, they do not actually meet, as is the case in the koodoo. On each cheek there are two large spots. The upper lip is white on either side of the nose, and the under jaw is also white. There is a white patch on the neck below the chin, and another on the neck just above the chest. The interior of the ears is white, except in the depressions between the ridges. There is a white stripe along the whole of the back from the neck to the base of the tail; this stripe divides into two at the base of the tail, and fringes the tail (which is rather long) with white hairs. The belly is white. There is a white spot on each fetlock and on the inside of each hock. Three rather faint vertical white stripes are present on the barrel, and there are seven or eight white spots on the hind-quarters. The females and young, however, have many more vertical white stripes and white spots on the body. It is said that the female, as is the case with the inyala of East Africa, has a black instead of a white stripe all along the spine. Horns are only borne by the male. A pair in my possession measure exactly 20 inches in a straight line from the inner corner of the base to the tip of each horn.¹ The horns perform one and a half turns. Their tips wear white. In appearance they resemble those of the bushbuck, though much larger and more bowed. The hoofs are longer than in all other bushbucks except the true situtunga (*T. spekei*), and the false hoofs are well developed. At the same time, this feature appears to be subject to much individual variation, and in the few specimens I have seen I have not remarked the great length of hoof recorded by Mr. Sclater in his original description of the animal. In the living specimen at present to be seen (September 1898) in the Jardin des Plantes at Paris the size of the hoofs is scarcely more than normal.

So far as is yet known, the habitat of this fine antelope is mainly limited to the northern part of the Congo basin and the adjoining district of

¹ The longest recorded pair measure 26½ inches in length, in a straight line, and 30 inches over the curve. These are in the possession of Mr. Rowland Ward.—Ed.



FIG. 40.—Senegambian variety of the West African Situtunga. Drawn by Sir H. H. Johnston from the specimen in the Jardin des Plantes.¹

¹ See note on p. 467.

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the Cameroons. I obtained a pair of immature horns on the Cross River, to the east of the Niger delta. It is possible that the range of this animal may extend as far west as Lagos. Southwards along the coast it does not seem to cross the River Congo, but inland no doubt its range extends some distance to the south of that river, though probably not much to the east of longitude 25° . In the southern and eastern parts of the Congo Free State it is replaced by the inyala of East Africa. As regards length of hoof and minor characteristics, it is possible that there may be completely transitional forms between the two species.

So far as my information goes, derived from inquiries made on the Cameroons River, this animal goes in pairs, male and female. It is very shy, and frequents dense vegetation in marshy localities. The only time I ever saw one in the wild state it raised its head above a clump of those magnificent six-foot-high *Lissochilus* ground orchids which line the marshy shores of the Cameroons delta. I wounded it, but it managed to get away for about a mile before it was despatched by my native attendants. It did not seem to be able to move very quickly through the thick vegetation.

The accompanying illustration has been drawn by me from the live specimen in the Jardin des Plantes at Paris (September 1898). As the horns of this animal were somewhat damaged, I have drawn the horns in the illustration from the perfect pair in my possession.

H. H. JOHNSTON.

THE SITUTUNGA (*Tragelaphus spekei*)

Situtunga OF BAROTSI; *Nakong* OF BATAUANA AT LAKE NGAMI; *Situtunga*, *Puvula*, AND *Unzuzu* OF CHOBI AND CENTRAL ZAMBESI NATIVES; *N'zocé* OF NATIVES OF LUKANGA RIVER, NORTH OF ZAMBESI.

The animal known to the natives of the Upper Zambesi and Chobi Rivers as the *situtunga* or *puvula*, and to the inhabitants of the Lake Ngami region as the *nakong*, is only to be met with in the swamps and reed-

beds of the larger rivers in the interior of South Africa. It used to be found in the reed-beds of the Upper Botletlie River, Lake Ngami, the Okavango, the Tamalakan, the Mababi, the Machabi, the Chobi or Quando, and the Zambesi to the north of its junction with the latter river. When travelling north of the Zambesi in 1877-78 I learned from the natives that the situtunga or some nearly allied species of antelope existed in the swamps of the Lukanga River, a tributary of the Kafukwe. From the descriptions given me, this animal appeared to be in every way identical with the situtunga found in the swamps of the Chobi. The local name for it was n'zobe. These swamps of the Lukanga are distant some 150 miles to the south-west of Lake Bengweolo, where Dr. Livingstone found that an animal identical with or very nearly allied to the situtunga was known to the natives by the name of n'zoe. Though the situtunga of the Chobi appears to be nearly allied both to *Tragelaphus gratus*, of Western Equatorial Africa, on the one hand, and to *Tragelaphus spekei*, the type of which species was originally discovered by Captain Speke on a small lake near the Victoria Nyanza in the East Equatorial African region, on the other, it differs in several respects from both these forms. Probably some form of situtunga is found all over Central Africa, wherever there are large swamps and reed-beds, and it may ultimately prove that the southern species is connected with *Tragelaphus gratus* and also with Speke's animal, and these two forms with one another, by many intermediate links which will eventually make it difficult to say whether the various forms of tragelaphine long-hoofed water antelopes found in different parts of Africa are true species, or only local races of one species. According to Mr. Walter Rothschild, the female and young both of *Tragelaphus gratus* and the tragelaphine antelope discovered by Captain Speke in East Equatorial Africa are bright red in ground-colour. In the situtunga the adult female is grayish brown, exactly the same colour as the adult male, whilst the young animals are very dark bluish black—

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almost the colour of an English mole—abundantly striped and spotted with pale yellow. In 1887 I obtained from the natives on the Chobi River the skin of a *situtunga* taken from its mother before birth. The ground-colour of this beautiful little skin was of a deep blackish hue (darker than an English mole-skin), and the hair beautifully fine, soft and velvety. It was very plainly striped and spotted with bands and spots of yellowish white. The yellowish bands were seven or eight in number, and



FIG. 41.

the spots ran in a line from behind the shoulder along the sides below the ends of the stripes to the hind-quarters, which were profusely spotted. I remember remarking that the stripes and spots were arranged exactly as they are on the coat of the adult male bushbuck found on the southern bank of the Chobi River, which shows, I think, that the *situtunga* and the bushbuck have both been evolved from one original form of antelope, within comparatively recent times—geologically speaking. I also procured at the same time the skin of a very young *situtunga* antelope,

probably not more than a month old. This skin was already of a lighter ground-colour than that of the fœtus, and the yellowish stripes and spots had become much fainter. In the adult animal, both male and female, the colour of the coat is a uniform grayish brown on the body, the stripes and spots having usually completely disappeared, though occasionally a few faint indications of stripes may still be seen. Under the belly and on the throat the hair is whitish, and there is also a fairly well-defined, rather



FIG. 42.

broad, white, arrow-shaped mark across the nose, extending to each eye, and also two very ill-defined whitish spots on each cheek. The ears are rounded, but smaller in proportion to the size of the animal than in any other of the tragelaphine antelopes with which I am acquainted. The hair is soft and silky and longer than in any other species of antelope found in the same country. The hoofs are excessively long, and, when splayed out, no doubt prevent the animal from sinking too deeply in the swampy ground in which it lives. As in the lechwe, the skin between the backs of the hoofs and the dew claws is devoid of hair.

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Owing to the fact that the situtunga lives in the midst of vast reed-beds and papyrus swamps, and is therefore but seldom seen, very little is known of its life-history. In 1879 I endeavoured to obtain some specimens of these antelopes in the reed-beds of the Chobi, on the edge of which I was camped for some time. I searched for them in a small canoe which was paddled noiselessly by a single native, at early dawn and after sunset, through the many small channels by which the vast reed-bed was intersected. In some places, patches of dry reeds had been burnt off, and in such spots I always found tracks of situtungas numerous, where these animals had been feeding on the young reeds springing from the boggy ground.

One morning I found a splendid old male lying dead. He had been killed during the night, evidently by another male of his own species, as he had a large wound in his side behind the ribs, which looked as if it had been made by a horn-thrust. The head of this antelope I preserved and still have in my collection. Apparently, however, the situtungas never came out to feed in the open ground except during the night after dark, always retiring into the thick reeds again before daylight. I disturbed a few, as I passed close to them in the canoe, and heard them splashing as they plunged through the water amongst the reeds and papyrus, but I only actually saw one, a female, that was standing in water that came half-way up her sides, in the midst of a bed of reeds, apparently engaged in feeding on the young shoots that appeared just above the surface of the water. When she saw me sitting in the front part of the canoe she dashed away through the reeds in a series of plunges. The situtunga which I found lying dead was a very fine old male. He was very thick-set and heavily built, with a very large neck; and as he lay he appeared to me to be as nearly as possible the same size as a lechwe ram, an animal with which I was just then very familiar.

If my judgment was correct, a large male situtunga would stand about

3 feet 4 or 5 inches at the shoulder. During the same year, 1879, I also found the remains of a fine male situtunga which had been killed by a leopard just outside one of the reed-beds of the Chobi.

The skull of this specimen is now in the collection of the Natural History Museum at South Kensington. Although so little is known of these animals by Europeans, there can be no doubt that they are plentiful in the vast reed-beds and papyrus swamps which they frequent, and in certain seasons of heavy floods, when the water in these reed-beds becomes so deep that the natives can paddle all over them in their canoes, great numbers of situtungas are killed. The headman of a small village on the Zambesi between Sesheke and the mouth of the Chobi told me that he and his people had killed fifteen of these antelopes in one day in a reed-bed near their village during a heavy flood. I also learned from the natives that when in seasons of flood the water in the reed-beds becomes deep enough to allow a canoe to be paddled through them, the situtungas, when they perceive a canoe approaching, do not attempt to run away, but just sink down in the water, where they happen to be standing, submerging the whole of their bodies and only leaving their nostrils above the surface, through which they breathe. When in this position, they are said to allow a canoe to be paddled alongside of them without moving, trusting that their enemies will pass them unobserved, and are then killed with assegais. I examined a considerable number of the skins of situtunga antelopes in the possession of the natives on the Chobi and the Zambesi, and as I found that they had all been killed with assegais and not shot, I have no doubt that they were killed in the manner I have described. In very dry seasons I believe that the natives sometimes kill situtunga antelopes by setting fire to the drier portions of the reed-beds, and driving the animals into the open channels of water, whilst swimming across which they are speared from canoes. During the recent desiccation of Lake Ngami, and the reed-beds of the Upper Botletlie and Lower

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Okavango Rivers, I believe that large numbers of situtungas have been killed and the species almost exterminated in those districts. These antelopes must, however, still be plentiful on the Chobi and Upper Zambesi, and so long as the vast reed-beds and papyrus swamps in those districts remain in their present condition there is little fear of their becoming extinct.

F. C. SELOUS.

IN EAST CENTRAL AFRICA

Chobè or *Njobé* of the Waganda, but as this name also includes the *Cobus thomasi*, it is not a clear definition of the species.

The male of this antelope varies from a rusty brown to mouse-colour. The hair on each side of the neck and under the throat, near the chest, is coarse and long. Whitish bands are noticeable on the flanks of the young bucks, but these fade out entirely and become scarcely distinguishable on the adult.

The ears are prominent and rounded, appearing large for the size of the head. The horns are strongly keeled, with whitish points. The full-grown male, in size, equals that of the bushbuck; some may be slightly larger. The feet are characteristic, the cleft runs high, and the hoofs are abnormally long with turned-up points. The females are rufous-coloured, white under the bellies and inside the thighs, and spotted on the flanks when young. These markings fade out similarly to the male's on attaining maturity. In size the does are much smaller than the males, and they are hornless.

This antelope is essentially a water-loving animal, and is only found in the marshy vicinity of rivers and the great swamp regions of Central Africa. Apparently it ranges from the neighbourhood of the Zambesi to the Albert Nyanza, and possibly still farther north, following the chain of lakes which lie in the heart of the African continent. Living as it does in the densest and most impenetrable swamps, nature has endowed it with

peculiarly elongated hoofs, which enable it to pass with ease over the treacherous surface of the marshes. By nature it is extremely shy, and as it seldom ventures outside its retreat, it is rarely encountered. When alarmed or pressed, it will take to the water and remain submerged, exposing the nostrils only above the surface for breathing purposes. Captain Speke has described it as being of a fierce and aggressive disposition when attacked. This trait in its character I have not so far observed, nor did I ever hear it alluded to by the natives.

In 1893-94, whilst travelling in Uganda with Major Williams, R.A., in the vicinity of the Victoria Nyanza, we learnt from the Waganda that a certain species of antelope existed in large numbers on one of the Sesse islands in the lake. At first we disbelieved this report, but finally decided to test its truth. Embarking in four canoes with a number of the Waganda, we made for the island, which was reached on the third day out. The island itself lay well out to sea, and was perhaps half a mile in length, and a few hundred yards across at its greatest width. A narrow neck in the centre gave it an hour-glass-shaped appearance. It lay low in the water, with rocky shores, and the interior was a tangled mass of heavy bush and undergrowth. A short examination revealed the existence of some kind of antelope, and after crawling about in the dense thicket for some time in a fruitless effort to obtain a specimen, we organised a drive with the aid of the canoe men. Taking up our positions at the narrow neck referred to, we gave the signal, and the drive commenced. The antelopes came stealing silently past, like shadows, but so dense was the undergrowth that only a momentary glimpse of them could be obtained. It was like rabbit shooting in a cover, though considerably more exciting. One fine buck leapt over the rock behind which I was crouching, almost on to the muzzle of my rifle. I was kept busily employed, whilst frequent reports from the other side also told me that Major Williams was having his share of the sport. The second drive from the opposite end of the

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island was equally successful, but on making a third attempt, not an antelope was to be seen, and we concluded that they had all taken refuge in the water. On reckoning up the bag, we found we had killed no fewer than twenty-four head of *T. spekei*, and though this sounds like butchery, it can only have been a small proportion of the numbers which must have passed us unseen in the bush, nor could we possibly judge at the time of the effect of our shooting. How this antelope came to be on the island, or to exist under conditions so entirely foreign to its swamp-loving nature, is a mystery, and we could only conclude that it might possibly be an interesting relic of the ancient Lubaré worship, which deified certain animals and natural objects, and that in accordance with this particular form of religion these antelopes had originally been conveyed to the island, and placed in sanctuary there. Whether there is any foundation for this theory or not, it is nevertheless a curious fact, that of all the surrounding islands which form the great Sesse group, on this particular one only are the antelopes said to exist.

ERNEST GEDGE.

THE BUSHBUCK—ABYSSINIAN RACE (*Tragelaphus scriptus decula*)

IN SOMALILAND

NATIVE NAME, *Dol*

The bushbuck of Somaliland has so far been found only on the banks of the Webbi Sheybelli, where it frequents the dense bush near the river.

It is a rather larger and heavier animal than a fallow deer. Colour reddish brown, with six to seven white stripes and spots; the head and neck very bare of hair. The male carries horns of about 15 to 16 inches, but the female is without any.

This buck, in some ways, seems to be more nearly related to the harnessed antelope than to the South or East African bushbuck. It has no

white V-shaped mark between the eyes, and has more white stripes and transverse markings.

It is the most wary and difficult to obtain of all Somali game, never leaving the dense bush except to drink at the river. The Adone, a negro tribe living on the Webbi, catch them in their game-pits, which they dig on the game-paths leading to the river. These pits are dug 8 feet or more deep, with a stake in the centre, and carefully covered with twigs and grass, etc. My Somali shikari, Khalif Hussein, used to laugh at the Adone and their primitive contrivances, but after falling into one of their game-pits he thought more of them. Crawling about in this dense bush, where the game-tracks are often mere tunnels through the rank vegetation, is more exciting than might be supposed, as besides the chance of inadvertently walking into a game-pit, there is every possibility of meeting a rhinoceros or a lion, both of which, besides other game, haunt these jungles. I remember once when creeping along a game-path in a dark bit of bush, three yellow forms rose from behind a fallen tree just in front of us and glided slowly away. It was a second or two before I realised that they were lionesses, and my snapshot at the biggest as she looked back was unsuccessful. I fancy they were watching the path for waterbuck, which were very numerous here.

When at Sen Morettu in 1894, I hunted both banks most perseveringly for three weeks, and succeeded in securing only three specimens. I did not see more than nine or ten, and of these only three were males. The best bushbuck I killed, I came on when least expecting to see one. I had been a long round by the remains of a waterbuck killed the previous evening, hoping to find that lions had visited the carcase during the night. When nearing the river I saw what I took to be the head of a lesser koodoo lying behind a tuft of grass. It was not a very nice shot, as I could see so little of the beast and had to guess more or less the position of the body. On eventually getting to it, I was delighted to find I had shot

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a most beautiful bushbuck with exceptionally fine horns, $16\frac{1}{2}$ inches in length. I had it carried back to camp on a camel and carefully photographed, as at the time I did not know that it had already been described, and hoped it might prove a new variety.

The meat is excellent, and those I shot were quite fat, and with the exception of koodoo, better eating than any other African antelope. The habitat of this bushbuck, as at present known, lies in Somaliland and Abyssinia.

A. H. STRAKER.

WESTERN RACE (*Tragelaphus scriptus typicus*)

Mbabala OF BAROTSE, BATONGA, AND MASUBIAS

This very handsome member of the bushbuck group is found in West, Central, and South-Central Africa. It varies somewhat in colouring in different localities, but the general type may be said to be bright rufous in character, conspicuously spotted with white on the haunches, shoulders, and sides, and bearing transverse white stripes down the sides. The females, which are hornless, are usually of a more yellowish red, well spotted, but with the stripes less well defined. Found usually near water and in thick covert. Although fonder of the neighbourhood of water than the southern form, this bushbuck is in its habits very similar to the three other races, which are more fully described. A good specimen will stand rather more than 30 inches at the shoulder. The finest horns measure as much as 15 or 16 inches over the curve. The rams are among the most beautiful antelopes in Africa.

H. A. BRYDEN.

EASTERN RACE (*Tragelaphus scriptus roualeyni*)

IN EAST AFRICA

SWAHILI NAME, *Mbawera* ; WANDEROBBO NAME, *Poinet*

In venturing the statement that I believe there is only one species of bushbuck found in East Africa I am fully aware that there are many who will not only demur but endeavour to prove that there are two species, the striped *T. scriptus*, and the spotted *T. sylvaticus*. However, until we have more data to go on, and some one can first produce a series of skins of both immature and adult beasts, properly labelled with locality and date, and can then point out, on the evidence of the spots and stripes only, where the one begins and the other ends, I do not think that it is possible to separate them, and I believe that the difference in the markings, and whether they are well defined or otherwise, is purely a matter of local variation and age.

The bushbuck is widely distributed, and is found throughout East Africa where there is a sufficiency of forest and thick bush. On the island of Manda and on the mainland near Lamu it is plentiful. There are also a fair number of them in the vicinity of Kilimanjaro in the Taveita and Kahe forests, but perhaps they are nowhere found in such plenty as in the forest and wooded hollows and watercourses of Mau, both on the eastern slopes and on the western plateau.

During the day they lie up just inside the forest and only come out in the evening to feed, excepting in places where they are never or rarely disturbed, when they may be occasionally seen throughout the day. Near the Eldoma Ravine Station, on the eastern slopes of Mau, at an altitude of 7500 feet, the bushbuck is exceedingly plentiful, so much so that it, together with the duiker, at one time became quite a pest and ate up everything in our kitchen garden, in spite of fences, and even when a war of extermination was waged against them by organised drives, which

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considerably thinned their numbers, others very soon took their place. French and the scarlet-runner beans are an irresistible attraction to them.

The ground-colour of the bushbuck varies from a bright chestnut-red to ink-blackish brown, and the older the animal the fewer and more indistinct the spots and stripes become, until they vanish altogether.

Many of the old bucks found on Mau, from 7000 to 9000 feet, at a little distance look quite black, and they are also slightly bigger and heavier than those found on lower ground, but there is nothing strikingly peculiar in this beast in the matter of darker colour, as nearly all the birds and smaller mammals, with an extensive range and provided they are permanent residents and not immigrants, are, in those high places, much darker than those found 3000 to 4000 feet lower down.

This is, I think, partly on account of the coat being much longer and thicker, but not altogether, as on examination each individual hair will be found to be several shades darker. This is no doubt a provision of Nature, which makes them assimilate better with the sombre surroundings of their forest habitat.

The bushbuck is an antelope that takes up its quarters in one particular spot in the forest, an isolated patch of wood, or thickly covered belts bordering the course of a stream; such places becoming its regular haunt, where it may be seen day after day in almost the exact spot, when it comes out to feed in the evenings and early mornings. If one happens to pass by during the daytime when they are lying up, they will often give notice of their presence by a loud baboon-like bark, should they either hear or scent the intruder. For this reason the bushbuck is not difficult to circumvent, as all the hunter has to do is to go out in the evening, about 4.30 to 5 o'clock, or, if in the morning, at daylight, and stroll along very quietly outside the forest in exactly the same manner as one does at home in the summer-time when after rabbits with a rifle by a cover side. If unsus-

cessful in getting a shot at a buck owing to the presence of does, which, on an average, predominate in the proportion of about two or three to every buck, he will at least have had the satisfaction of locating them in a certain spot, and after taking a mental note of the position, can return some other time, with if possible a day or two's interval. He should then be on the ground not later than 5 P.M., and take up a position from which he can command a good view, though concealed himself, and wait patiently until they come out to feed. The does and young ones will be the first to appear, the old bucks rarely venturing out until just before sundown. By this time the does will have had time to reconnoitre—they appear to rely on their sense of hearing and smell much more than on sight—and settle down to feed; and, until the buck does appear, I know of few pleasanter ways of spending an hour or so in the quiet cool of the evening than watching two or three of these beautiful creatures within sometimes less than 50 yards, as they slowly and noiselessly move about, delicately nibbling a blade of grass or the leaf off a bush, and every now and again stopping to listen, with their large ears working backwards and forwards. If by some mischance the does see or scent danger and retreat back to cover with their loud warning bark, there will be no chance of the buck putting in an appearance that evening until it is too dark to shoot.

The does drop their young during February and March.

The measurements and weights of a buck and doe taken on the spot where they fell are as follows :—

Buck.—Total length, 5 feet $3\frac{1}{4}$ inches; height at shoulder, 2 feet $11\frac{1}{2}$ inches; tail, 9 inches; weight, 148 lbs.

Doe.—Total length, 4 feet $10\frac{1}{2}$ inches; height at shoulder, 2 feet $7\frac{1}{2}$ inches; tail, $7\frac{1}{2}$ inches; weight, 92 lbs.

F. J. JACKSON.

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SOUTHERN RACE (*Tragelaphus scriptus sylvaticus*¹)

Bosch-bok OF THE BOERS; *Inkonka* (♂), *Imbabala* (♀), OF THE ZULUS; *Imbabala* (BOTH SEXES) OF THE SWAZIS AND MATONGA; *Ibabala* OF THE BASUTO; *Ibawara* OF LOWER ZAMBESI NATIVES.

This well-known antelope varies so much in coloration in different parts of the country, and even in very limited areas, that, interesting though the subject is, it cannot be dealt with fully here. Roughly speaking, I may consider it as inhabiting four great districts, and differing in appearance in each. That of the Cape Colony is the darkest, being deep brownish-black, at a distance appearing quite black. There are a few white spots on the haunches and flanks, perhaps twelve to fifteen, and from two to four very faintly outlined stripes over the back and loins.² The Natal and east coast bushbuck is deep brownish-gray, with a few more spots and somewhat better defined stripes. In the Eastern and Northern Transvaal and in Gazaland the ground-colour of the fur is deep brownish-gray, warmer on the head and lower limbs, with eighteen to twenty-five spots on shoulder, flanks, and haunches, and three or four fairly defined stripes. On bushbuck from the Lower Zambesi the stripes and spots are similarly arranged, but on a dark red ground, while, as Mr. Selous has shown, the beautiful Chobi

¹ I cannot agree with the present designation, *Tragelaphus scriptus*, often applied to the South-East African bushbuck, and think the old *sylvaticus* should be restored, with *T. sylvaticus rosaleyni* as designating the Chobi River variety.* The North African harnessed antelope alone would retain the designation *Tragelaphus scriptus*.

² The description of the Cape Colony bushbuck given in the *Royal Natural History*, vol. ii. p. 278, is misleading. It reads thus:—"Lastly, we have the true bushbuck of the Cape, in which the coloration is a *uniform dark brown at all ages* (the italics are mine) *with no trace of stripes*," . . . Why is the Cape representative the "*true bushbuck*"? Admitting the colour to be dark brown, it is certainly not so "*at all ages*" any more than in both sexes. The young rams are pale reddish-brown in colour, very many shades lighter than the adults. Every bushbuck has more or less clearly defined stripes. Those of the Colony are no exception, though the stripings are very faint.

³ Mr. Lydekker has restored the *sylvaticus*. Mr. Kirby is, I think, in error as regards the Chobi River variety, which belongs properly to the Western Race *T. scriptus typicus*. However, the whole of this subject (Bushbucks) is a most difficult one, and finality is not yet reached.—En.

River bushbuck is also dark red, but has as many as fifty spots on each side, and eight well-defined stripes. All South African bushbuck, however, have the bare "neck-collar," the white bars on throat and chest, an erectile mane of white and dark hairs from shoulder to tail, along the back, the tragelaphine face-markings, and black-tipped tail, while in all the disposition of the white markings on the limbs is similar. The young of the Zambesi bushbucks are less spotted than the adults, but exactly the reverse is the case in the more southern forms. In parts of the old Colony a browner-coloured bushbuck, said to be longer in the leg than the other, is met with. The maximum shoulder-height I have yet recorded from the Colony is 2 feet 9 inches for a ram, and 2 feet 5 inches for a ewe. The maximum dimensions I have obtained from the North-East Transvaal, from amongst the records of many hundreds which I have shot, are as follows:—Extreme length tip to tip 5 feet 3 inches; vertical standing height 3 feet; girth of collar $24\frac{1}{2}$ inches. Horns set behind the eyes at a slight angle from the plane of the frontals—spiral (forming a turn and a half) more or less divergent and recurved forward, keeled, black with straw-coloured tips. Thirteen inches is a good average length for the horns. My largest pair measures 16 inches. The longest pair recorded by Mr. Rowland Ward is $19\frac{7}{8}$ inches. Ears short, wide, and rounded. The cry of the bushbuck is a short, deep bark, uttered by both sexes when alarmed, or on seeing anything suspicious, the nature of which they cannot understand.

These antelopes are found in suitable localities throughout South Africa, and, owing to their retiring habits, will be the last to remain. They are strictly preserved in the Cape Colony for six months in each year, and this fact, together with the security afforded by the vast areas of scrub-jungle in the country, has conduced to the perpetuation of the species in larger numbers than anywhere else in South Africa. Thickly-wooded country, or open ground, intersected by deep bush-kloofs, is the favourite resort of bushbuck. A certain amount of low bush and scrub is necessary, for in

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actual *forest* country—unless there is some such cover near at hand—they are very seldom found. For instance, in the great Chiringoma Forest, Portuguese East Africa, and the Chiperoni Forest, Mozambique province, I met with none, nor did I see their spoor, while on the scrubby fringe of both they were numerous. Wherever I have met with bushbuck—except in the Cape Colony—it has been in the neighbourhood of water; but in the latter country they are numerous in the dry arid jungle-tracts of the Humansdorp Division many miles from any water. Their food consists chiefly of the leaves and shoots of various aromatic shrubs, but a certain quantity of grass is also eaten. In the dry districts of the Cape Colony above referred to, these antelope freely eat the leaves of the “spek-boom”; hence, I think, their ability to do without water. They seldom eat the young maize plants in native gardens, but eagerly devour beans, pumpkin and sweet potato leaves, and underground nuts. Bushbuck run in pairs, but when the ewes are in young the rams lead solitary lives. They seldom leave their retreats till dusk, but in the early mornings, especially after a cold night, are often seen standing motionless, sunning themselves at the edge of the bush. In wet weather they are on the move throughout the day, often playing and leaping about¹ in a charming manner. Their range is limited over a given tract of country, and old rams will be found year after year in the same bush. Their flesh is excellent eating, better, I think, than that of any small antelope. Young bushbuck are usually born between the middle of October and the middle of December, though often as late as February.

There is but one admissible method, from a sportsman's point of view, of shooting bushbuck, viz. stalking; for in bush-driving there is an entire lack of what I consider the first great principle of sport—fair play—the winning of trophies by one's own unaided skill in forest-craft. As for the

¹ Few people credit the distance which these heavy-looking animals can cover at a bound. About a month ago my brother and I measured two leaps, 16 feet and 18 feet—34 feet in two bounds.

use of a shot-gun at a bush-drive (unless the laws of the district forbid the use of a rifle), I unhesitatingly condemn it as poaching of the worst kind, and utterly unsportsmanlike. Bushbuck are, with perhaps the two exceptions of the inyala and the rhebuck, the wariest creatures in South Africa, and he who wins his trophies fairly has something to be proud of. They may either be stalked in the bush, which is the most difficult plan, requiring the exercise of the greatest perseverance and skill in forest-craft, or as they stand sunning themselves on the edges of the bush. For this purpose a good pair of field-glasses is very necessary, and will enable one to pick up many a fine ram which would otherwise be overlooked. Bush-driving, as I have said, is not, in my opinion, sport, but is practised extensively where bushbuck are found. Beaters are sent into the bush or kloof with dogs to drive the buck out to the posted guns. When the number of the latter is insufficient to guard all likely exits, a coat or fluttering piece of paper hung up will often prevent a buck breaking, and probably force him to run out at some spot guarded by a gun. In the Cape Colony harriers are largely used, and their steady perseverance inevitably forces the buck to show himself. A kloof or bush must of course be driven down wind, otherwise the bucks invariably break back. A wounded ram must be approached with caution, for they can and will charge viciously, and give an ugly poke. It is a fine sight to see an old ram at bay, standing with angry eyes, erect mane, and lowered points, on which many a good dog has met his death. Any good .360 express or .450 rifle will account for a bushbuck, and the Lee-Metford also is an A1 weapon. Hollow-fronted bullets should always be used.

F. VAUGHAN KIRBY.

THE GIRAFFES

Family GIRAFFIDÆ. Genus GIRAFFA

Although in former times inhabiting Southern Europe and Asia, this family is now restricted to Africa south of the Sahara, where it is represented by the single genus *Giraffa*. Externally giraffes are broadly distinguished from all other living ruminants by their towering height, mainly due to the elongation of the neck and limbs, the withers being considerably higher than the hind-quarters. On the crown of the head in both sexes are a pair of short, straight, upright horns, covered permanently with hairy skin; while on the forehead is developed a median bony process of variable size, also invested with skin. The ears are rather large, the muzzle is broad and hairy, with slit-like nostrils which can be closed at will, face-glands are present, and the tongue is long and extensile. The neck and withers are maned, and the tufted tail reaches about to the hocks. All traces of the lateral hoofs have disappeared. The upper cheek-teeth have short and broad crowns, with, like those of the lower jaw, a very rough enamel. In addition to unusual lightness, the skull is remarkable for the elevation of the front plane of the forehead and face above the eyes, and likewise for the large size of the unossified space behind the nose-bones. The blotched coloration is also a very distinctive feature of the genus.

Of the foregoing characters, those relating to the horns are the chief which entitle the giraffe to be regarded as the representative of a family by itself.

Two species may be recognised, viz.—

1. Nubian Giraffe (*G. camelopardalis*).
2. Southern „ (*G. capensis*).

A western race has been separated as *G. camelopardalis peralta*; and

PLATE XIV

1. Northern Giraffe Head. Drawn and coloured from Lord Delamere's specimen.
2. Northern Giraffe Head (three-horned variety).
3. Southern Giraffe Head.



FIELD
MUSEUM

FIELD
MUSEUM

two other races have been described by Dr. Matschie from East Africa.¹

THE TWO GIRAFFES

IN BRITISH EAST AFRICA

NDOROBO NAME, *Njangitomara* ; SWAHILI NAME, *Twiga*

In British East Africa two forms of giraffe (*G. camelopardalis typica*, and *G. capensis*) meet.

The southern animal, identical with the giraffe of South Africa, is found as far north as the Athi or Sabaki River at all events ; and all about the route to Uganda, so far as there are any giraffes, they belong to that kind. In all probability the Tana River from the sea to Mount Kenia is the division, though I could not say absolutely for certain that there are no northern giraffe on its right bank, having never killed a specimen there ; but I do know that as soon as the river is crossed there are no more of the southern kind seen all the way to Lake Rudolph. Probably from Kenia the line of parting may be continued inland by the Laikipia plateau ; but this is mere conjecture, as I do not know for certain how far the southern form extends north of the latitude of Baringo, if at all.

Mr. W. E. de Winton has gone carefully into the question of the differences between the two species in his "Remarks on the existing forms of Giraffe," published in the *Proceedings of the Zoological Society*, 1897. Although the distinctive colouring of each is not easy to describe clearly, the appearance of these two species of giraffe is strikingly different. The general effect of the southern form is of an animal having a dirty-white ground-colour, marked with numberless irregular, ill-defined blotches varying from reddish fawn-colour to a hue approaching to black in different individuals ; while the northern type produces the impression

¹ See note on p. xiv. Contents. But it remains to be seen whether these are good sub-species.—Ed.

of a beast of a rich chestnut—varying from light to very dark, according to age and sex—covered with a network of beautifully symmetrical white lines forming a sharply-defined polygonal pattern.

The horns of this latter variety are larger than those of the southern kind; and a third, and somewhat smaller horn (but exactly similar in shape, covering, and appearance) is present in the centre of the forehead of the male skull which I presented to the Natural History



FIG. 43.—Giraffes (northern form) feeding in thick scrub in country to north of Gwaso Nyiro.
Photographed by Lord Delamere.

Museum, and also in the Abyssinian specimen that has been there many years. It would be rash to assert that this appendage is an invariable characteristic of the form, without a more extensive experience; and as the one above alluded to is the only specimen I have brought home, I should hesitate to say positively that every specimen I have killed had it; but I have certainly never seen anything of the kind in any southern giraffe, nor have I met any one who has. And although I have heard that it has

been stated that specimens have been killed with such a peculiarity, I have not yet heard of one being produced.

In habits the northern giraffe does not differ from its relative. It may possibly be somewhat smaller, for the height of the full-grown males I have shot averaged about 16 feet, that of the cows 14 feet; and though I have not found these dimensions exceeded, respectively, in any of the southern specimens of either sex I have myself killed anywhere, I have



FIG. 44.—Bull giraffe (northern form). Photographed by Lord Delamere in the Rendile country to the north of Gwaso Nyiro.

read in the accounts of other hunters of considerably taller animals being obtained in parts of South Africa.

As a rule the giraffe prefers rather open bush country. It is particularly plentiful in the neighbourhood of the Gwaso Nyiro River, a little north of Kenia, where the character of the country appears just suited to its wants; and I have there seen very large herds (containing forty or fifty or more individuals) on both sides of the river. Occasionally, though, giraffes are found in pretty thick bush—I have come upon them in such situations a little north of the Tana River, and sometimes elsewhere—and in these instances it is wonderful to see how such ungainly creatures can gallop

through wood so dense that one has difficulty in running oneself, ducking their long necks to pass under the branches as they plunge along with their rocking-horse gait. But although they may enter dense bush in their search for some favourite food, they do not penetrate far into such cover. So much is this the case, that when traversing thickly-wooded country, if giraffe spoor is seen, it is a sign that more open ground is not far off; and I have, on occasion, after a long weary struggle through tiresome scrub, hailed with delight such evidence that we should soon reach easier going.

The cows sometimes get very fat, and then their meat is unsurpassed by that of any African animal, and none will keep so long. It is hardly credible, but a fact, that even when travelling (so that it has to be carried in the sun for many hours every day) in Equatorial Africa, if properly treated, it will keep quite good for a week easily in fine weather, and even longer sometimes, for it seems rather to dry up than decay. The way to manage it, or any meat, on the march is to have it tied up in a covering of leafy sprays, but with nothing else over it, a stick being introduced into the bundle to stiffen it; and as soon as the camp is reached, it should be undone and hung up under the shade of a tree till the next morning. An old bull is quite uneatable.

These animals are very difficult of approach, in a general way, for they are extremely keen-sighted, and their towering height enables them to command a wide view. When several are together, as is generally the case, they are especially hard to stalk; since it becomes impossible to keep out of sight of all those different pairs of eyes, up among the tree-tops, at once; and if, as sometimes happens, they are accompanied by other game, the difficulties are still further increased. It is then only by the most careful, painstaking stalk, exercising every precaution, regardless of sun, thorns, and other inconveniences, and very likely spending a long time over it, that the hunter can hope to arrive within shot. Even then many disappointments result, for the animals are probably moving about, so that

one of them may suddenly come into full view of the stalker just while he is executing an arduous crawl ; and even though he instantly become rigid and lie motionless, patiently baking on the hot ground, its large, keen eye may have detected a movement and the alarm be given. If once you can



FIG. 45.—Giraffes (northern form) feeding on mimosa in country to the east of the General Mathews Chain. Photographed by Lord Delamere.

get within moderate distance of your game, it often becomes easier to approach still nearer ; for then it may be possible to get their heads behind bushes which before they overlooked. Arrived within convenient shot, do not edge round to come into full view ; rather sit and wait till your giraffe moves out from behind the screen, when, if you remain immovable, you

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will not be noticed : meanwhile you are recovering your breath and regaining your steadiness, which a difficult creep in the hot African sun cannot fail to have considerably shaken.

The Ndorobo natives are very rarely able to shoot giraffes with the bow and poisoned arrow, owing to the difficulty of getting near them. But they occasionally catch them in their fall traps, set in places where they are in the habit of crossing gullies or in paths through thick patches of bush. The Wakamba are sometimes able to kill them with arrows by hunting in large parties and surrounding a herd ; but even so, I fancy, they very seldom succeed.

The modern small-bore rifles are more effective than any other on this, as on most, if not all, kinds of game. The heart or lungs may be reached from any position, and a shot there is very quickly fatal. It is necessary, though, to be particularly careful not to aim too high, as the immense width of the base of the neck tends to deceive the eye as to the position of the vitals.

It often happens, particularly when suddenly come upon, that the neck is the only part of the giraffe visible. In such cases a shot in the centre of the neck will break the spine and drop the animal on the spot. It was Mr. Astor Chanler, the well-known American traveller, who suggested this shot to me, as he told me that he had killed most of his giraffes with it, and I found it very effective. One may often lose a chance by trying to get a view of the body of one, forgetting that any point on the central line of the long neck is a vital spot.

In Central Africa one only shoots giraffes when in need of meat for one's men. The skin is far too heavy and bulky to carry away as a specimen, and even the skull is a cumbersome thing to transport, whilst it is not of much interest as a trophy. Moreover, they are such strangely beautiful, such grotesquely graceful creatures, and withal so harmless, that one feels some hesitation in slaying them except for urgent needs. It is a particularly lovely sight to see from an eminence or opposing slope the

lofty necks of a herd towering above a sea of bush, with the early morning sun full upon them, standing out conspicuously under its brightening rays against the background of dark green.

Where there are isolated conical hills, such as are called koppies in South Africa, it is often possible, by climbing one and from that commanding position scanning the country round, to see giraffe, if there are many in the locality, perhaps two or three miles away. Their prominent height makes them conspicuous objects from such a point of vantage, particularly in low scrub, such as they often frequent, which their towering forms dominate and upon which they look down, browsing with bowed necks.

I do not think that lions very often succeed in killing these animals, defenceless though they be; and when they do, I believe it is generally a solitary giraffe (individuals of either sex are often seen alone) that has been surprised and pulled down by a party of lions.

I am not aware that the giraffe has any special breeding season. The young calves are wonderfully fleet—far more nimble than the adult animals.

These creatures of course feed exclusively upon the leaves, tender shoots, and sometimes the seed-pods of trees and shrubs. Although they undoubtedly do drink sometimes, they are certainly able to go for considerable periods without water, and are found in the driest country long distances away from any possible drinking-place.

Tick-birds—the same that so generally accompany the rhinoceros—often visit them, and it is curious to see these little guests running up and down their long necks, clinging to their sides and bellies, or sitting contentedly upon their heads while emitting their soft, querulous chirruping.

I have never heard giraffe make any sound, nor have I heard or read anywhere that their cry, if they have one, has ever been noticed.

I have often been asked whether the giraffe and other large animals are not almost exterminated in Africa. The idea that this is so, has no doubt been spread in this country by the writings of those familiar only with

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South Africa, who have described the state of things brought about there by the destruction of big game wrought by Boer and native hide-hunters. I am glad to say that in the part of Africa of which I write this is by no means the case, and is not likely to be unless the country should be allowed to be flooded with cheap guns and powder which the natives would, like those of other parts, in time learn to use. Moreover, in South Africa the giraffe have been killed off by *mounted* hunters. Here, in East Africa, there are neither the horses nor much chance of using them effectively, nor is there the means of transporting the hides nor any demand for them, as in the south, where they are used chiefly for making whip lashes for the bullock-waggon whips.

A. H. NEUMANN.

SOUTHERN RACE (*Giraffa capensis*)

HOTTENTOT NAME, *Naip* ; BECHUANA NAME, *Tutla* (pronounced Tootla) ;

MATABELE AND ZULU NAME, *Ntutla*

The Masarwa Bushmen of the Kalahari call this animal *Ng'habi*, a name singularly resembling the Ethiopian name for this animal in the time of Pliny, which, according to that great writer, was *Nabis* or *Nabin*. The Boers of South Africa speak of the giraffe invariably as *Kameel* (camel), and all British hunters south of the Zambesi universally refer to the tall quadruped by the same name, "camel."¹

It has only recently been completely established by naturalists that the giraffes found in various parts of Africa are to be separated into absolutely distinct species. Formerly it was supposed that no practical difference existed between the giraffes of North and South Africa, but more recent research and discovery have established the fact that very considerable variations are to be found. It has long been noted that in the northern or Nubian form of giraffe a prominent third horn, rising from the centre of the forehead, between

¹ The Arab name for the giraffe—from which this animal takes its modern designation—is *Xirapha*.

the eyes, to a height of from 3 to 5 inches, has often been noticed in adult specimens. All giraffes carry two horns, or false horns, as they may be called, upon the summit of the head. These false horns are bony prominences, growing from the skull, and are covered with yellowish brown hair, which at the tips becomes black. In the skulls of young animals these false horns are easily detachable, but, as the animal becomes adult, the prominences are found firmly attached to the rest of the bony framework of the head. In the southern form, the curious dome-like bone in



FIG. 46.—Bull Giraffe (northern form), shot in Boran Galla country. Photographed by Lord Delamere.

the centre of the forehead gives some indication of the third horn to be found in the northern form, but it appears never to develop beyond this prominence or to become an actual horn. In the writer's opinion the differences between the northern, southern, and western giraffes are sufficient to constitute sub-species but scarcely species. A new form of giraffe, widely differing in colour from what may be called the Soudan, Cape, and West African varieties, has, within the last few years, been discovered by Major Wood and his friend Captain Finch in Somaliland.¹ The skin

¹ This form is quite distinct from the well-known Soudan giraffe, of which examples were exhibited for many years in the Zoological Society's Gardens. It certainly differs vastly from the South African

of this animal, which was exhibited for some time at Mr. Rowland Ward's in Piccadilly, was quite different from that of any other form of giraffe yet identified. The body colouring, a very dark chestnut-brown, scarcely showed any of the distinctive mottlings or patches so noticeable in all other specimens; the skin at a short distance looks as if the animal were entirely of one colour, the markings being only indicated by thin minute lines of creamy white. A description of this animal and of the hunt in which it was obtained follows this article. Some six other similar giraffes were seen in the troop. Lord Delamere has recently brought home more skins of this curiously marked giraffe, procured in the interior of North-East Africa, and Mr. A. H. Neumann has also met with it in British East Africa, from the Tana River northwards to the north end of Lake Rudolf. It remains to be seen whether many other examples of this singular form are to be found in Somaliland and the adjacent regions. It seems clear, however, that this species or sub-species has been definitely established, and that the scientific name assigned to it (*G. camelopardalis typica*) is justified.¹

The coloration of giraffes varies greatly. In the young animals and cows it ranges from pale fawn to light chestnut, orange-tawny, or yellowish-orange. The young cow giraffe now in the Zoological Gardens, captured in South-East Africa a few years since, was, when taken, not only singularly dark for her age, but her markings were very closely distributed. Old bulls become with age very dark chestnut in colour, and, in fact, upon the back are almost black. In the same way old cows often become much darker as they grow old, and at a distance may occasionally be even mistaken for mature bulls. In the Soudan and some other parts of Equatorial Africa the colouring is, as a rule, somewhat lighter than in the

giraffe. Apparently modern naturalists would class the Soudanese giraffe as *Giraffa capensis*; but there are distinct differences in coloration—and probably in other respects—between these two races. Further research is much needed on these points.

¹ Personally, I think it would have been better to have assigned the designation *typica* to the Soudanese form, which has always been most familiar in European collections.—Ed.

animals found farther south ; the pale body-colour between the dark blotches is more clearly defined and the legs below the knee are more often pure white without any dapplings. It is to be remarked that, in the wild state, giraffes are not only much deeper and richer in colouring than in captivity, but are better nourished, stronger, and considerably heavier than those bred in confinement. There seems to me, indeed, to be more difference between wild and captive examples of these animals than in any others shown in the various Zoological Gardens.

In height a full-grown male giraffe will stand fully 19 feet, from the hoofs to the tips of the false horns. An old bull, shot by the writer's hunting companion, Mr. W. Dove, in the North Kalahari, in 1890, was most carefully measured by the writer and found to be less than half an inch short of 19 feet. Mature cows run to 16 or 17 feet in height. A cow giraffe, shot by the writer in the desert country near the Botletli River, Ngamiland, measured 16 feet 10 inches. The hoofs are divided and in shape are somewhat like those of cattle, although, of course, much more elongate. The hoof of a full-grown male will measure close on 12 inches in length, and gives an enormous spoor after the rains. The spurious hoofs, common to most ruminants, are lacking. The height of the giraffe results mainly from the enormous length of leg and neck, although, curiously enough, this animal possesses only the same number of neck vertebræ (seven) as other mammals, including man.

The neck is decorated with a short, crisp, erect mane of chestnut-coloured hair. The tail is long—34 to 36 inches in length—and terminates in a full tassel of thick, wiry, black hairs. The mammæ are four in number. The nostrils can be tightly closed at will, by a curious arrangement of sphincter muscles ; this I take to be a provision of nature, not, as is sometimes suggested, against sand-storms, but against the numerous thorns of the acacia-trees from which the animal procures most of its sustenance. Giraffes are, as a matter of fact, seldom found in open

country, where sand-storms prevail. The upper lip is long, protruding, and prehensile, and, like the lower lip, is furnished with a dense coating of thick velvety hair, also, as I believe, a further protection against thorns. The skin of the giraffe is thick and tough, especially upon the back and shoulders, where it attains in mature specimens a thickness of about an inch. The tongue, long, pointed, and extremely prehensile, is used as a means of grasping the succulent green leafage of the acacias on which this animal browses. The giraffe is, strangely enough, voiceless.¹ One of the most beautiful features of the giraffe are the eyes, which are dark brown, full, soft, and melting, and shaded by long lashes. They are so placed in the head as to afford a very wide range of vision. Save for its speed, which is considerable, its wonderful powers of sight and scent, and the difficulty, extreme remoteness, and often inaccessibility of its various habitats, the giraffe has small power of sheltering or protecting itself against its numerous enemies. It can and does, however, use its feet, and a chopping kick from the fore-foot of this gigantic animal when wounded and brought to bay is highly dangerous and should be carefully avoided by the hunter. The flesh of a fat cow giraffe—not too old—is excellent, tender, well tasted, and resembles young beef, with a game-like flavour of its own. The marrow bones, which are immensely long, are delicious, and are one of the prime *bonnes bouches* of African hunters.

The habitat of the giraffe, formerly a very wide one, has been, owing to much persecution, a good deal circumscribed within the last fifty years. In the northern part of the continent it may be yet found in Somaliland, Gallaland, parts of the Soudan, and Senegambia. The young male recently purchased by the Zoological Society was captured at Dakka, in

¹ I have never heard one of these animals make a sound, even when dying. I have questioned many hunters on this point—English, Dutch, and native—and their testimony has always been to the same effect—that the giraffe is voiceless. The Masarwa bushmen of the Kalahari, who know the habits of these animals better than any other Africans, stoutly maintain that the giraffe is incapable of uttering a sound.

French Senegal, in the extreme north-west of the continent. Lower down, in West Africa, the animal seems to be rarely if ever heard of, until the Portuguese province of Angola is reached.¹ Here, especially in the country behind Benguela, it is fairly common. For the last fifteen years, since the closing of the Soudan by the Mahdi's followers, it would seem that giraffes have largely increased in numbers. During the last year or so, 1897-98, they have been encountered within a few hours of Kassala by officers of the recent Italian garrison. In East Africa and in parts of



FIG. 47.—Cow Giraffe (northern form), shot in Boran country. Photographed by Lord Delamere.

Central Africa giraffes are often to be met with, especially in the open forests to be found in the territories of British and German East Africa.

The giraffe was, however, probably most abundant, in the good days of African hunting, between the Orange River and the Zambesi. It is doubtful whether its range ever extended south of the Orange River, although an old Hottentot tradition that the animal once sheltered in the Amaebi thorn country, in the Queenstown district of Cape Colony, may be referred to. In South Africa it is not now to be encountered until the traveller reaches the north-eastern border of the Transvaal. In the country

¹ But see p. 509 as to giraffe in the Niger country.

there adjacent, Portuguese South-East Africa, Mashunaland, Matabeleland, the northern and western parts of Khama's country, the whole of the northern portion of the Kalahari, Ngamiland, and Ovampoland, it is still found more or less abundantly. Its most favourite country at the present day south of the Zambesi is undoubtedly in the vast, waterless, giraffe-acacia forests of the North Kalahari. Here, far from permanent water, in country where even native hunters can scarcely penetrate, large troops of giraffes still roam. In this, the most waterless portion of South Africa, giraffes have the faculty of being able to exist for long periods—six or seven months at a time—without drinking. This faculty they share with the eland, the gemsbuck, hartebeest, duiker, and steinbok, all of which are to be found ranging these dry and remote solitudes during the months of African winter, when not a drop of surface water is to be found over hundreds of miles of country. In the old days, before firearms were introduced, I am inclined to think that the giraffe, far more often than at the present time, was to be found upon open plains, wandering from one piece of forest country to another. Since firearms and hunting horses were introduced—especially the latter—the destruction of these magnificent creatures has proceeded much more rapidly than of old. Even although the hunter be armed with the finest weapons of precision, the giraffe, from its extraordinary powers of sight, hearing, and scent, its towering height, wide field of vision, and its incessant watchfulness, is not by any means an easy animal to approach and bag on foot. In Central and East Africa, where horses are seldom acclimatised, comparatively few of these animals are destroyed, as compared with the slaughter that has for many years been going forward in South Africa, where horses have for a couple of generations past been freely employed. In addition to the difficulties of approaching these suspicious and most wary animals, stalking on foot is, in a tropical climate, sufficiently exhausting work, and only the hardest and most enthusiastic of English sportsmen are to be found regularly pursuing

that form of sport. In stalking giraffe in fairly bushed or moderately afforested country the sportsman has, with care and caution, a reasonable chance of success ; but it is to be remembered that these animals are perhaps the shyest and most timid of all African game, and that they are incessantly upon the look-out. Moreover, in forest country the eddies and currents of wind are extremely fickle and perplexing. Once a troop of giraffe gets the hunter's wind, or even a suspicion of his approach, they are off like a shot, and the chances are that he will never get near them again that day.

Ever since the time when the emigrant Boers and the early English sportsmen began to cross the Orange River between 1830 and 1840, and to hunt systematically in those wonderful virgin hunting grounds, which even now are by no means exhausted, the chase of the giraffe on horseback has been held in the highest estimation. Cornwallis Harris, Gordon-Cumming, Baldwin, F. C. Selous, Sir Frederick Carrington, and many others have time and again described this form of sport in the most enthusiastic terms. And, in truth, it must be admitted that the first sight of these gigantic creatures, their extraordinary appearance, and the headlong run up to the troop when in full flight, are amongst the most exciting and enjoyable of all forms of African hunting. After a few of the desperate and often prolonged gallops which are necessary to accomplish the downfall of these tall quadrupeds, it must be admitted that the average English sportsman, who shoots for specimens, pleasure, or a necessary supply of meat, is content to cry enough, and to shoot a giraffe only now and again when absolutely necessary. This view, however, is not one that commends itself to the Dutch and native hunters of South Africa, who slaughter mercilessly whenever opportunity offers. Dutch hunters have, of course, used horses for hunting for some generations past. In more recent years the Griquas and the various Bechuana tribes have become possessed also of horse-flesh, and have long been in the habit of making periodical incursions in pursuit of flesh and skin into all parts of their

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country. They penetrate even into the waterless deserts after the periodical rains; and, by using the scant pools, or even by existing, at a pinch, upon the wild, bitter water-melons which often grow very luxuriantly throughout the desert, they are enabled, by the use of horses, to pursue and slay large numbers of giraffe and eland in the very heart of the Kalahari Thirstland itself.

The value of the hide of a full-grown giraffe is from £4 to £6, the skin being largely employed for making native sandals and colonial whips, known universally in South Africa as *sjamboks*. There is a constant commercial demand for these hides. As a consequence, Boer and native hunters are to be found shooting giraffes in large numbers, and, for the miserable value of their skins, these noble and unique creatures are, year by year, and month by month, persecuted and pursued until they threaten, at no very distant period, to become extinct south of the Zambesi. It is true that game laws are supposed to be in force in most countries of South Africa. But in the far wilderness it is impossible to enforce these laws, and the shooting of rare game goes on, in too many instances, quite unchecked. Seven or eight years ago the number of giraffes slain during two seasons by native hunters round Lake Ngami, a famous headquarter of these tall beasts, amounted to more than 300 head of those animals. This, of course, was but a small percentage of the giraffe destruction going forward simultaneously south of the Zambesi. For the benefit of those British hunters who shoot purely for the love of sport, or to procure specimens, or to obtain in a husband-like manner a necessary food-supply for their servants and native hunters, the following remarks on South African giraffe hunting, culled from the writer's own experience, may be useful.

The sportsman will, of course, have provided himself with two or three good hunting ponies, which can be procured at Kimberley, in British Bechuanaland, the Transvaal, Orange Free State, or elsewhere, at the price of from £15 to £20 apiece. A "salted" horse will, of course,

cost much more—say from £50 to £100; but for ordinary purposes unsalted ponies will do very well in the dry, healthy season between May and October. The hunter should never leave his waggon without a full water-bottle, a box of matches, and a compass, and it is advisable—to make sure of his mount—to have a light cord, or hide *riem*, connecting his belt with the cheek-ring of his pony's bit. These precautions are necessary in the dry and desert giraffe country of, say, the North Kalahari, where to be lost on foot is a most serious matter. The spooring operations are conducted by native hunters, who are glad enough to find game for the white man. If the hunting grounds lie, as they often do, at two or three days' distance from the waggon, it is most useful to take in a water-cart (a barrel mounted on wheels), from which the horses can be sparingly supplied. The spoor of the giraffe, when found, will probably lead through thin, park-like forest country of giraffe-acacia or mopani, too often well bushed with dense thorny jungles. Nowadays, giraffe will usually be found in troops of from seven to fourteen, though occasionally eighteen or twenty may be encountered. In the farthest recesses of the Kalahari—if the hunter can penetrate so far—seventy or eighty may occasionally be seen during the day, according to the reports of the Masarwa bushmen. Personally the writer has never come across spoor of more than six-and-twenty during the day, including a magnificent troop of nineteen found and successfully hunted.

The spectacle of a troop of wild giraffe is certainly one of the most wonderful things in nature. The uncommon shape, the great height, the long, slouching stride, the slender necks, reaching hither and thither among the spreading leafage of the camel-thorn trees, the rich colouring of the animals—all these things combine to render the first meeting with giraffes in their native haunts one of the most striking and memorable of experiences. As the tall giants usually run, when pursued, into the thorniest and densest jungle they can find, the hunter will be well advised

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to put on a cord coat when his trackers are actually hot upon the spoor. Otherwise he may suffer cruelly from thorns when ramming his horse through the bush in the heat of the chase.

So soon as the giraffe are sighted, it is the hunter's business to push his horse with whip and spur at its hardest gallop in pursuit. Giraffes, at their own pace, can stay amazingly, and will wear out the toughest pony. But, forced beyond their pace, they tire, and the hunter can gallop right up to their sterns in from 2 to 4 miles of headlong chase and get his shot at close quarters, firing from the saddle. Some hunters ride up to within 50 or 100 yards, jump off, and take their shot on foot. In the writer's experience, after trying both methods, it is better to push one's horse to within a few yards of the stern of the quarry, and then, dropping the reins, take one's shot without dismounting. A solid bullet, whether .450, .500, or other bore—it should not be less than .450—easily penetrates the short body of the giraffe and reaches the vital parts. It is best to aim at the root of the tail. The ordinary Martini-Henry solid bullet, Government pattern, is good enough, and has been found by the writer to be an excellent missile for this kind of game. When first disturbed, giraffes usually shuffle off at walking pace. This pace is very deceptive, and the hunter is apt to be misled by it. It is better instantly to put one's pony to its swiftest gallop and make the pace as hot as possible, if the sportsman wishes to bag his game. Sometimes a troop may be found on the outskirts of a forest, and can be forced into the open. The gallop is then a glorious and most exciting one, and the view thrilling in the extreme. From the long, slouching, yet marvellously swift walk, the animals break into a curiously awkward bounding gallop. Their tall forms rock and sway in an extraordinary manner, and the long necks meanwhile swing up and down with mechanical, flail-like motion. In bush and forest, giraffes dodge and swing round trees, and duck their long necks under low branches in a quite amazing manner. The thickest

and thorniest bush has no terrors for their thick hides, and they burst through such obstacles without difficulty.

At length the hunter has ridden close up to his game and put in his shots. Suddenly the tall dappled form staggers, sways, and then falls crashing to the earth. Another bullet ends its struggles. The hunter dismounts and, streaming with perspiration, surveys with keen interest the wonderful prize stretched out before him, and lights a welcome pipe. Presently his bushmen spoorers come running up, hot upon the trail. They have a long and tough business of skinning before them. The giraffe—I am supposing it to be full grown—weighs about a ton, and it requires the combined exertions of two or three men to pull its carcase over from one side to the other. Enveloped in its chestnut-coloured and enormously thick hide, it seems clad, as it were, in a mantle of brass, and for the next hour or two the hunter and his assistants have plenty of employment in dismantling and cutting up their quarry.

H. A. BRYDEN.

APPARENTLY NEW FORM OF GIRAFFE FROM SOMALILAND¹

LETTER FROM MR. ROWLAND WARD TO THE EDITOR OF "THE FIELD,"
24TH FEBRUARY 1894

SIR—Major Wood recently sent me the skin of a female giraffe which he secured on the last shooting trip to Somaliland, and as the specimen is quite differently marked from the South African form, a short description of it may be of interest to big-game sportsmen. The face is of a reddish-brown colour from base of horns to nostril, with a few grayish hairs and a small blackish tuft above the eyes; under jaws lighter in colour and marked out

¹ There can, I think, be little doubt that this is to be referred to Mr. Lydekker's *Giraffa camelopardalis typica*, or northern form of giraffe. The various forms are, however, at present by no means clearly defined, nor are the relative differences sufficiently explained or accounted for. A good deal of research and inquiry yet remains to be done to clear up this difficult subject.—Ed.

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with narrow white lines, which are less clear as the lip is approached; neck very distinctly marked with large patches of colour, almost hexagon and sexagon shaped, divided by narrow white lines. More deep reddish brown extending from base of horns to about centre of back, and is continued by a dark coloured line to root of tail. Upper sides marked as well but lighter, and with the same divisions clearly defined; under part of belly has larger markings and is less distinctly coloured; upper portions of the fore-legs have larger markings than those of the hind, and fade away when the knee is reached; below the knee is of creamy white. This, I believe, is the first specimen shot in Somaliland by an Englishman, and is certainly a very handsome skin. By Major Wood's permission it can be seen at 166 Piccadilly by any one interested in the subject.

(Signed) ROWLAND WARD.

(The skin was exhibited at the last meeting of the Zoological Society, and its polygonal patches of colour, separated by narrow white lines, remarkably distinguished it from the spotted giraffes with which the members are more or less familiar.—Ed., *The Field*.)

NOTE BY CAPTAIN M. B. FINCH ON THE SOMALILAND GIRAFFE

NATIVE NAME, *Géri*

This specimen was killed in November 1893 in the Aulihán country. Our party (Major Wood and myself) crossed the Webbi Shebeyli at Juri, marched along the river through the Karanleh country for two and a half days, then, leaving the river, struck south and slightly east, and at the midday halt, on the second day after leaving the river, came across the first giraffe tracks seen, but these were some days old. The country had been gradually rising after leaving the river, and when, after coming through jungle covered with low bush of different varieties, we crossed between

the small hills of a low range running east and west, we found ourselves in a vast undulating plain, covered with a low, rather broad-leaved tree, the highest of which did not exceed 20 feet. The surface of the country was cut up by a few dry river-beds, in some of which we found good water-holes, and the nature of the soil was generally sandy. After a few days spent here we saw the first giraffes; two of them were evidently cows from their colour. This stalk was, however, spoilt by jealousy on the shikari's part. The next giraffes we saw were a small herd, one bull, a splendid dark chocolate-coloured fellow, two cows and two or three calves, not half grown; the bull appeared to stand a good deal higher at the shoulder, and also in entire height, than the cows, and altogether appeared a much heavier, stronger, and larger animal. The wind was light and shifty, making the stalk, over ground offering very little cover, by no means easy; but anyhow, whether from this or other causes, we again, to our great regret, failed to achieve success. The giraffe, when alarmed, went away in a heavy lumbering gallop, but at a great pace.

We were greatly handicapped in this country, both after giraffe and elephant, in not having ponies with us.

This same evening a cow was killed, the description of which has been given above. Having no native of that particular part of the country with us, we were unable to find out many points of interest.

Time and sickness were pressing us with heavy hands, and we were forced to leave this happy hunting-ground with a great deal of useful knowledge ungained.

M. B. FINCH.

WESTERN RACE (*Giraffa camelopardalis peralta*)

Of this race—if it can yet be said to be truly established—very little is known. In 1897 a young male was shot at the junction of Benue and Niger rivers by the late Lieutenant R. Hume-M'Quorquodale. This is a

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part of Africa where, hitherto, no giraffes had been supposed to exist. Only the skull and the anterior cannon-bones of this animal appear to have reached England. These, on examination, seemed to indicate that this giraffe differed somewhat from the northern and southern forms, especially in its superior height, and Mr. Oldfield Thomas named the variety, or sub-species, *Giraffa camelopardalis peralta*.¹ What is known of it is described in the *Proceedings of the Zoological Society* for 1898, p. 40. Mr. Thomas is of opinion that this Niger form is most nearly allied to the northern race of giraffes, and he points out that the skull differs materially from other forms.

A young male giraffe, captured in Senegal, was purchased by the Zoological Society and brought to their gardens in Regent's Park in July 1898. Unfortunately, this animal died, after but a month's sojourn in its new abode. It is described as belonging to the northern form. Its markings—light fawn patches upon a whitish ground—seem to me to indicate that it was closely allied to the well-known race of Soudanese giraffes so long familiar in the Regent's Park Gardens—a race which in its looser and paler markings differs materially from the giraffes shot in recent years in Somaliland, Gallaland, and the Lake Rudolf regions.

H. A. BRYDEN.

THE DEER

Family CERVIDÆ.

Genus CERVUS—TYPICAL DEER.

This family being but very poorly represented in Africa, and only in the region to the north of the Sahara, it will be unnecessary to devote more than a very brief space to its distinctive characters. With the exception of two small kinds, the males of all existing species of deer are

¹ It may be doubted, however, whether specimens of this race, if the sub-species is further identified, will prove to be taller in stature than the largest recorded specimens shot in South Africa.

distinguished from both the *Bovidae* and *Giraffidae* by the appendages on the head taking the form of antlers. These, it is almost superfluous to say, although covered with a soft velvety skin during growth, when fully developed consist of bare rugged bone, supported on a pair of skin-covered pedicles, from which they are periodically shed, to be replaced the following season. Antlers, although occasionally in the form of simple spikes, are generally branched in a more or less complex manner. Many deer have upper tusks, which are always wanting in the *Bovidae*, and in the species without antlers these are long and sabre-shaped. The lateral hoofs have proper supporting bones, which are always wanting in the *Bovidae*.

In the genus *Cervus* the antlers, which are restricted to the males, are provided with a brow-tine, above which there are at least two other tines. The African forms are as follows :—

A. Antlers rounded, without expansion.

1. North African Red Deer (*C. elaphus barbarus*).

B. Antlers expanded and palmated in their terminal two-thirds.

2. Fallow Deer (*C. dama*).

THE BARBARY STAG (*Cervus elaphus barbarus*)

Al wassi OF ARABS OF ALGERIA ; *Fertassa* OF TUNISIANS.

This deer is somewhat smaller than the red deer of Europe, and its antlers are generally without the bez or second tine, though the present writer has seen specimens of horns at Tunis in which the bez was represented by a small nodule. The colour of the male is a dark sepia brown, a little lighter and grayer on the back. Faint yellowish spots can occasionally be distinguished on the fur in the adults, while the young, of course, are plainly spotted with yellowish white, as is the case

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with the ordinary red deer. The females are no lighter in colour than the males, but are without the gray on the back. The height at the shoulder in the male may be about 3 feet 10 inches, though there was one specimen living in the Bey's menagerie in Tunis up till June 1898 which seemed quite as tall as the ordinary red deer.¹

The present range of this sub-species would appear to be limited to some parts of Morocco, to the extreme east of Algeria, and the west of



FIG. 48.—Barbary Stag (*Cervus elaphus barbarus*) in the Woburn Collection.
From a Photograph by the Duchess of Bedford.

Tunisia. As regards Morocco, the present writer merely inserts the name of that country from having read in books that the Barbary deer was found there; but the only habitat of which he is able to speak with

¹ Vicomte Edmond de Poncins writes of the size and horns of the Barbary deer :—

"These stags are rather rare but very fine. I saw lately a head with twelve points and 34 inches broad at the widest between the horns. I never measured one in the flesh, but I make them quite as big as a good sambar. Many have been destroyed by natives shooting them for food; now, I am glad to say, it is strictly forbidden to shoot them, or they would soon be extinct."—Ed.

certainty at the present day is that strip of well-forested country which extends from near the Mediterranean coast on the frontier of Algeria and Tunis (near La Calle), southwards to the verge of the Sahara Desert. The deer is most abundant in the cork forests of North-Western Tunisia and in the pine forests to the east of Tebessa. The Barbary stag is now protected in Tunisia, and is increasing considerably in numbers, especially in the pine forests on the Tunisian side of the frontier near Tebessa. A French authority, M. Lataste, is quoted in *The Deer of all Lands* as having said that the Barbary stag was found in the desert country round Dwirat, in the Tunisian Sahara. This statement must be due to a complete misunderstanding. The present writer has visited Dwirat, and it is evident that the animal alluded to by the native informers of M. Lataste was the addax antelope. The Barbary stag never ventures from the shelter of the forests. After some years of protection, it has ceased to be a very shy animal in Tunis, but in the days when its hunting was permitted it was very wary. The present writer assisted in the killing of a stag in North-Western Tunisia eighteen years ago. It was followed on horseback, and hunted by Arab greyhounds—the beautiful white *slugi*. The Barbary stag becomes extremely savage in captivity. The Hon. Terence Bourke, British Vice-Consul at Bizerta, has bred this animal in captivity, but the father stag has succeeded in killing all his hinds except one, his own daughter.

H. H. JOHNSTON.

THE FALLOW DEER (*Cervus dama*)

The fallow deer, which is found wild at the present day in parts of Greece, in Spain, Portugal, Sardinia, and Asia Minor, is believed to have inhabited North Africa, especially Eastern Algeria. The present writer has made many inquiries on the subject, but cannot ascertain that any specimen has been obtained of a real wild fallow deer during the present

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century. Cuvier and other French writers of the early part of this century stated that fallow deer were found wild near Tunis (as well as in the forests of Eastern Algeria). But it would seem that these Tunisian fallow deer had been kept in a semi-wild state by a former Bey of Tunis, and Tunisian authorities state that they were obtained by this Bey from Sardinia. The Beys of Tunis for a century past have been fond of keeping birds and beasts either in menageries or in parks. In this way they introduced at one time the domestic buffalo from Italy, and allowed it to run wild upon an estate in the northern part of Tunis, where it now exists in a small herd of about fifty, resembling in appearance, though inferior to, the Indian Arni. In like manner the Beys have kept fallow deer from time to time, but I do not think any case has been recorded within the present century of real wild fallow deer being found within the limits of Tunisia, or indeed in Algeria.

H. H. JOHNSTON.

THE WATER-CHEVROTAIN

Family TRAGULIDÆ. *Genus* DORCATHERIUM

The chevrotains, or mouse-deer, are small, delicately-built ruminants, in some respects intermediate between the true deer (with which they are often confounded) on the one hand, and the camels and pigs on the other. They have, for instance, the hinder cheek-teeth of a deer-like type, and they lack upper front or incisor teeth. But their anterior cheek-teeth are of a more pig-like type, while the structure of their feet is, on the whole, more pig-like than deer-like. They have no trace of horns or antlers, but their upper jaws are armed with formidable flattened tusks, like those of the musk-deer.

The typical members of the family (*Tragulus*) are confined to the warmer parts of Asia, the sole African representative being the water-

chevrotain (*Dorcatherium aquaticum*) of the West Coast. The water-chevrotain is chiefly distinguished from the Asiatic genus by the shorter and stouter feet, the larger lateral hoofs, and the absence of a true cannon-bone in the fore-legs.

WATER-CHEVROTAIN (*Dorcatherium aquaticum*)

Like many of the animals of Western Africa, the water-chevrotain is but little known in Europe, although it has been exhibited in the London Zoological Gardens, where it has once bred. It is a somewhat larger animal than the Indian chevrotain (*Tragulus meminna*), with which, however, it agrees in having its reddish-brown fur profusely spotted and striped with white, the thick and irregular stripes having a longitudinal direction, and being mostly confined to the flanks. There are large patches of white on the throat and chest, while the under surface of the tail is also white. About 13 or 14 inches is the height at the shoulder.

Compared with the Oriental chevrotains, or mouse-deer, the water-chevrotain, which is the only existing species of its kind, has stouter and shorter feet, with relatively larger lateral toes and hoofs. Such slight differences would, however, scarcely be regarded as entitling the creature to be separated from the genus *Tragulus*. Such separation is, however, justified by the structure of the skeleton of the lower part of the fore-leg, which consists of two distinct bones lying parallel to one another, instead of a single bone only. For a long time the water-chevrotain was known by the name of *Hyomoschus*; but, as certain fossil ruminants, described at an earlier date as *Dorcatherium*, differ only by having four instead of three pairs of lower premolar teeth, the latter name may replace the former; such a slight difference as the variation in the number of the lower teeth being scarcely sufficient to justify the separation of the recent and extinct forms as distinct genera.

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The water-chevrotain is an inhabitant of the forest districts of West Africa ; its range being definitely known to extend from the Congo to Liberia, Ashanti, and Togo, although how far it reaches into the interior has not yet been ascertained. Accounts of its mode of life are very meagre ; but from the little that is known it appears to frequent the thick cover on the banks of rivers, and in general habits to resemble a pig. A female in the Zoological Gardens produced a single offspring in January 1883.

JOHN MARRIOTT.

THE WART-HOG

Family SUIDÆ. Genus PHACOCÆRUS

As previously mentioned, the three families of the *Bovidæ*, *Giraffidæ*, and *Cervidæ* agree in the common feature of having crescent-shaped lobes to their cheek-teeth, and in lacking upper front teeth. And it may be added that they exhibit a further mutual resemblance in the complexity of their stomachs, in the fusion of the two bones of the lower part of each leg to form a cannon-bone, and likewise in the almost universal presence of appendages of some kind on the heads of at least the males. In all these features the pigs and hippopotami differ from the above type, having irregular warty or trefoil-shaped tubercles on the hinder cheek-teeth, well-developed upper front or incisor teeth, comparatively simple stomachs, no cannon-bones in the lower part of the limbs, and no horn-like appendages on the head. As they also differ, although in a less striking manner, from the chevrotains, the two families are brigaded in a group by themselves, technically termed the Suina.

The pigs themselves are easily distinguished by the long head, the truncated, mobile snout terminating in a naked disc, in which are pierced the nostrils, and the upward curvature of the tusks of the upper jaw, against the sides of which the lower tusks bite. In the feet the lateral

toes are comparatively small and not applied to the ground in walking ; and the hinder cheek-teeth, of which the last on each side of the lower jaw is elongated, do not show a distinct trefoil pattern on their grinding surfaces. Bristly hair generally more or less completely clothes the body.

The most peculiarly Ethiopian representative of the family is the wart-hog (*Phacochoerus æthiopicus*), an animal of a remarkably forbidding and ugly appearance, characterised by the huge head, of which the lower extremity is much expanded, and the sides of which are furnished with two pairs of warty protuberances between the eyes and the tusks, the uppermost pair being considerably the larger. The huge upper tusks, which are coated with enamel only at the tips, are much longer than the lower pair, and the last cheek-tooth in each jaw, which in old age is often the only one remaining in addition to the tusks, is characterised by its peculiarly complex structure, consisting of a number of closely packed, slender, cylindrical columns united by cement.

It is frequently considered that there are two species of wart-hog, but it seems probable that the second (*P. africanus*) is, at most, nothing more than a north-eastern race of the first.

THE SOUTHERN WART-HOG (*Phacochoerus æthiopicus typicus*)

Vlakte-vark OF THE BOERS ; *Indaigazana* OF THE SWAZIS AND ZULUS (SOMETIMES *Indhlovudawani* OF THE LATTER) ; *Kolobé*¹ OF THE BECHUANAS ; *Ikulubi* OF TRANSVAAL BASUTO ; *Njiri* OF LOWER ZAMBESI NATIVES.

There are few more hideous creatures on the earth than this African representative of the *Suidæ*.

The members of the genus are characterised by their enormous heads, the broad, flat lower portion of the face, great length of muzzle, the

¹ Sometimes *Kolobé sa naga*.—ED.

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presence of two large warty protuberances on each side of the face—one below each eye and another between this one and the snout,—and by the fact that the upper canine tusks—which are of great size—are longer than the lower ones, whereas in the true pigs exactly the reverse obtains. The upper tusks of a growing animal are enamel-tipped, but this wears off in the adults. The lower tusks, which have excessively sharp cutting edges, do not wear against the whole surface of the upper ones, but against the inferior portion only, hence the great size attained by the latter. A tusk measuring 9 inches outside the jaw is a good one, and over the average, but an abnormal pair of 27×26 inches is recorded.¹ Some years ago I saw a pair of 15 inches, and last year I had the good fortune to secure an old boar carrying $15\frac{1}{2} \times 15$ inches tusks. Young wart-hogs have thirty-four teeth, but many of these disappear in the adults, which have neither incisors nor anterior cheek-teeth. The four molars which remain, however, are of great length from back to front, but narrow. The ears are small and pointed, tail long and tufted, body barrel-like, and almost naked. There is a gorget of whitish bristles round the chest, and the lower limbs are thinly haired; while a mane of coarse stiff bristles covers the upper part of the neck and the back as far as the root of the tail, being longest on the shoulders. The general colour is brownish-gray with a rufous tint in some individuals. A full-grown boar stands from $27\frac{1}{2}$ to 29 inches at the shoulder, but I have recorded three of 31 inches and one of $31\frac{1}{2}$ inches. The wart-hogs I met with in Portuguese Northern Zambesia, south-east of Tete, and in the Mozambique province invariably gave smaller measurements, none being over 27 inches. Young wart-hogs are uniformly coloured, usually reddish-brown.

The range of the wart-hog is more limited than that of the bush-pig, the animal never having been known—so far as I am aware—south of the

¹ *Records of Big Game*, by Rowland Ward. These were from an Abyssinian wart-hog, and came from Annesley Bay.—Ed.

Orange River.¹ It is now rare in Zululand and Amatongaland, but common enough in Swaziland, Gazaland, and the Transvaal east of longitude 31°. Thence it extends up the east coast through Portuguese East Africa, Manicaland, the Barue country, Mashona and Matabeleland,² and across the Zambesi as far as I have travelled. It shuns densely forested tracts, but is partial to thick thorn-jungle and thin forest with open glades and rough stony dongas. Wart-hogs usually prefer dry and somewhat sandy tracts of country, hence the statements made by Heuglin that they habitually repose on swampy ground, or even in water, has been generally discredited. In 1896-97, however, when elephant hunting in Northern Chiringoma, Portuguese East Africa, I obtained strong confirmatory evidence that his statements were not altogether unfounded. In December and January the great Urema plains were nothing but a vast marsh, in which, at all hours of the day, wart-hogs were incredibly numerous, far distant from the edge of the forest, where the rising ground was dry. They may, of course, have left these drier retreats during the night, but I could not satisfy myself on this point, and came to the conclusion that they seldom left the marsh, contenting themselves with lying up in the comparatively dry patches which occurred at intervals. Generally speaking, however, they prefer to lie in wooded dongas or thick patches of jungle, from which they emerge in the evenings and feed throughout the night. They are very partial to a mud-bath, and when on elephant-spoor one day, I came on an old boar lying on his back in a mud-hole with all four feet in the air. Their food consists of roots, berries, and grass, and I have seen them eating the young shoots of the borassus and raphia palms. At one time I believed that they burrowed in the ground, but am now convinced to the contrary; they will occupy old ant-bear holes, and, if necessary, enlarge them, but I can

¹ Although wart-hogs are not now found in Cape Colony, it seems doubtful whether the range of these animals did not extend westward from Natal, through Kaffraria, to the eastern frontier of the old Cape Colony.—Ed.

² It is found also in various parts of Bechuanaland.—Ed.

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find no evidence from personal observation that they will actually dig such holes themselves. Though I have galloped after scores of them I have never seen them break out of a swift trot. When thus running, the tail is held upright, with just the tufted tip turned over. Every now and then, when desirous of looking behind them, and being quite unable to turn their heads in the ordinary way, owing to the shortness of their necks, they raise their snouts and look back over their shoulders; and anything more ludicrously absurd than the picture thus presented cannot be imagined. They always enter a burrow backwards, and if pursued seem to slew themselves round and disappear in the hole without halting for an instant. Although I have seen many wart-hogs "bolted" from their burrows, I have never witnessed the acrobatic feat of throwing themselves over backwards, which they are said to perform on such occasions.

Wart-hogs usually run in pairs or in family parties, consisting of two or three sows and their young; old boars, however, are more or less solitary throughout ten months of the year. It is a singular fact that though the sow has but four teats and only brings forth three or four young in a litter, six or eight such youngsters are often seen accompanying a single sow. Is it possible some of these may be "adopted children"? The sow always litters in a burrow of some sort. The flesh of a fat wart-hog is very excellent eating, though a trifle hard; that of a young one is particularly tasty.

It is poor fun shooting wart-hog, but good sport might be sometimes obtained by riding them, but for their invariable custom of going to earth. I have often tried it, using an assegai for a spear, but never drew blood. They are easily killed with a bullet, and their smooth, gliding trot makes them an easy mark even though going hard. They have not a fraction of the pluck of a bush-pig, but are sufficiently vicious to be awkward customers to *knife* when wounded. I have done this on several occasions, but one requires to be quick about it, for they can bite most severely.

When hunting in the Matamiri bush last year, I had wounded a boar and chased him to earth in a shallow burrow ; then, crouching down in front of the hole, I drove an assegai into his throat, but being a light weapon, the haft broke and the hog at once charged out, ran between my legs, and knocked me down. As I fell I seized a hind leg, when he instantly whipped round and inflicted a very nasty wound on one of the boys, thinking, perhaps, that it was he who had hold of his leg. The second boy, however, saved the situation by assegaiing the brute before further harm was done. Any .450 rifle carrying expanding bullets will kill a wart-hog clean.

F. VAUGHAN KIRBY.

THE NORTHERN WART-HOG (*Phacochoerus aethiopicus africanus*)

SOMALI NAME, *Dofar*

The wart-hog is, of course, so called from the conical protuberances on its face. In the boar they are four in number, symmetrically placed one on each side of the face between the eye and the mouth, and one on each side of the head behind the eye ; the latter are the largest. When cut off close to the root these appear to be knobs of skin devoid of blood-vessels. The boar has bristles considerably over a foot long from the top of the head along the back ; the rest of the body being clothed with much shorter bristles. The tusks of the boar are very fine, the upper pair being the bigger. The best I have weigh 10 ounces and $10\frac{1}{2}$ ounces, respectively, and measure 12 inches along the curve, of which 10 inches on the outer curve and 9 inches on the inner curve project beyond the gums ; from tip to base in a straight line they measure 8 inches. The lower tusks weigh $2\frac{1}{2}$ ounces each, and are $9\frac{1}{2}$ inches round the curve, of which 6 inches project beyond the gums. From tip to base in a straight line, 7 inches. The circumference of the upper tusk is $4\frac{3}{4}$ inches at the gum. The massive character of

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the upper tushes gives the old boar a fine appearance in the sounder, as the ivory can be seen at a long distance. The sow's tushes are as large as those of an Indian boar and project 3 to 4 inches from the lip. The large boars are found solitary, and also with the sounder. Though a formidable-looking beast, he is an inoffensive animal and does not, I am told, charge when ridden with the spear. I have seen the wart-hog moving about at all times of the day; the largest sounder I saw consisted of eight individuals.



FIG. 49.—Wart-hog speared in North Somali Protectorate, Oononoof Plain. Photographed by Lord Delamere.

They carry their tails upright, at right angles to the body, as they move along. If you shoot a wart-hog you have to cut off the head, carry it home and clean it yourself, as the Somalis will not touch one at any price, pig being abhorrent to staunch Mohammedans. The wart-hog is fairly plentiful both at the base of the Golis range and on the plateau to the south of those hills. They are not difficult to stalk, and in most places the ground is quite easy riding. When ridden I have heard they sometimes disappear into a hole in the ground, backing in stern foremost.

J. D. INVERARITY.

THE PIGS

Genus Sus

From the wart-hogs the species of the genus *Sus* differ, among other features, by the smaller, narrower, and more pointed head, the absence of the large conical warts on the face, the relatively smaller upper tusks, which are coated all over with enamel, and also by the simpler structure and lower crown of the last molar in each jaw. They may be divided into true pigs (sub-genus *Sus*) and bush-pigs (*Chæropotamus*), the former being widely distributed in the Old World, while the latter are exclusively Ethiopian. The bush-pigs have one pair of cheek-teeth less in each jaw than the true pigs, the hinder cheek-teeth themselves are simpler, the tusks are smaller, and on each side of the face is a pronounced swelling, due to the presence of a ridge of bone over the sheath of the tusk. The African forms are as follows, viz. :—

A. True pigs (sub-genus *Sus*).

1. Wild Boar (*S. scrofa*).
2. Sennaar Boar (*S. senaarensis*).

B. Bush-pigs (sub-genus *Chæropotamus*).

3. Common Bush-pig (*S. chæropotamus*).
4. Abyssinian „ (*S. „ hassama*).
5. W. African „ (*S. „ porcus*).

No. 3 is divided into three local races—*S. chæropotamus typicus*, *S. chæropotamus nyasæ*, and *S. chæropotamus hassama*.

ALGERIAN WILD BOAR (*Sus scrofa*)

The Algerian wild boar is very like the wild boar of France, and I can affirm that both are of exactly the same species, the slight differences between them being due only to the difference in the climates of the two countries.

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The Algerian boar is often a little darker than the French one; the snout seems to be a trifle longer, and its hair is neither so full nor so long as is the case with the French boar. These are the only differences I could detect after seeing a great many examples of both these wild swine.

I have often heard people say that in Algeria the boars were small and had big tusks. This is by no means my experience. It sometimes happens that when one goes shooting without taking any special trouble to find heavy boars, one comes across sounders of hogs. These are young ones as a rule, and hardly over 120 or 130 lbs. weight. But if trouble is taken, and one goes to the right places, the big boars will be found surely enough. What I call a big boar is anything over 200 lbs. clean. I saw them often over 250 lbs., and shot one weighing 275 lbs. They rarely stand over 35 or 38 inches high, 33 inches being about the average. As for the tushes, they are very like those of the French boar; 2 inches showing out of the gum is not a bad sample; 3 inches is very rare. Any tusk measuring more than 8 inches over the outside curve is good. The length of the tush is not always found corresponding to the size of the boar, and I often saw big hogs with small tushes, and small ones with large tushes.

In Algeria the wild boar is to be found in every place where forest or brushwood abounds. The jungle is very thick, and these animals seldom leave it except at night. Sometimes one may see them at early morning, or just before dark, in the clearings or on the outskirts of the forest. They love the thickest and the coolest places, and often wallow in the mud. In the daytime, unless there be heavy rain, they lie up and seldom move.

Often eight, or even ten, hogs are born at a litter, nearly always in a dry place near to water. The young are striped at first. By the time they have grown to 20 lbs. weight they are brown in colour, and when more than 50 lbs. is attained they turn black. The hogs of one litter

keep together until they are about a year and a half old and weigh some 120 lbs. apiece. An ordinary sounder of hog would be one three-year-old boar of 140 to 160 lbs. in weight, one sow of about 140 lbs., and six or seven young pigs of about 40 or 50 lbs. apiece. Very often, when the young sounder have attained about 100 lbs. each, they herd together and quit the parents.

The boars over three years old are very often found associating by themselves, and going to the sounder only at rutting time. If some of these big boars happen to meet near a female, then a tremendous fight takes place, as I more than once saw.

Old males are nearly always found alone, or with a younger male. Very often when five or six years old the hair of these old hogs is grayish or brownish in hue. They keep preferably to the vicinity of water and mud, and often spend the day in these damp places, where very dense and thorny bushes are found growing beneath the larger forest trees.

About March nearly all the boars are found near water. In hot weather they often betake themselves up into the hills in search of shady and cool ravines. In September they come down again. The females occasionally breed when a year old, but as a rule not until they have nearly attained two years. The food of Algerian wild swine is exactly like that of the European boar, and they are especially fond of the acorn of evergreen oaks or cork-trees.

VICOMTE EDMOND DE PONCINS.

THE SENAAR BOAR (*Sus senaarensis*)

Quadruk OF ARABS

Very little is known of this wild pig, and even among the records of scientific natural history, references to it are of the briefest. It is described in Gray's *Catalogue of Carnivora*, etc., 1869, p. 338, as having the fur dense, bristly, dull olive black, varied with yellow. Ears moderate, densely

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pilose; head without any warts. *Habitat*.—North Africa, Senaar, Kordofan, Soudan. This is apparently a true *Sus*. Now that the Soudan regions are to be opened to the world again, we may be able to find out more about this animal and its habits. Possibly it may turn out to be only a sub-species of *Sus scrofa*, the common wild boar of North Africa and Europe.

H. A. BRYDEN.

COMMON BUSH-PIG (*Sus chæropotamus typicus*)

Bosch-Vark OF THE BOERS; *Ingulubi* OF THE ZULUS AND SWAZIS

Abundant though these animals are throughout the forested districts of South-East Africa, few sportsmen have given any information concerning their habits, and I am convinced that few have any idea what grand sporting beasts they are. They vary much in size and colour in different parts of the country. Amongst the foothills of the Eastern Transvaal and in Swaziland they attain their maximum size, a full-grown boar standing 2 feet 4 inches to 2 feet 7 inches at the shoulder, and a sow 25 inches to 26 inches, the average weight of the former being from 150 lbs. to 170 lbs. Sometimes, however, real monsters are met with, and amongst the scores that have fallen to my rifle and assegai there have been not a few such. The largest I ever shot was 5 feet 3 inches in total length over all, 2 feet 10 inches in vertical shoulder height; weight 235 lbs.; his tusks were 4 $\frac{3}{8}$ inches in length. In the Cape Colony 27 inches to 28 inches is the maximum height attained, while in Portuguese East Africa and the territories north of the Zambesi 26 inches is rarely beaten. Their usual colour is brownish-red, face and mane grizzled, but there is scarcely any combination of blackish-brown, brown, red, and white that I have not seen. Mottled brown and white, or rather pale gray, is very common, and I once shot a huge old boar which was of a gray so pale all over the body as to appear white at a distance. North of the Zambesi I have not yet

shot a single individual thus mottled ; all have been of a uniform brownish-red, though the colour of the mane-bristles differs somewhat in each. I think, however, that it can only be a variety of *S. chaeropotamus*, with which it has certainly greater affinities than with the red river-hog (*S. c. porcus*) of West Africa. The bush-pigs are formidable-looking beasts, with bristly manes, small deep-set eyes, tufted protuberances on their cheeks, and short sharp tusks. The upper canines are short, protruding



FIG. 50.—Head of Bush-pig (*Sus chaeropotamus*).

forward horizontally at an angle from the jaw ; their anterior surfaces are worn smooth and often chisel-edged by the constant attrition of the lower tusks. The length of the latter outside the jaw seldom exceeds 3 inches. The tail is more or less tufted, and the ears slightly pencilled in some individuals, particularly those north of the Zambesi.

This bush-pig ranges from the south-eastern districts of the Cape Colony throughout the forested tracts of the east coast to the Zambesi. They are only really plentiful in rough broken country, well wooded and watered ;

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and being very retiring in their habits, are seldom seen unless systematically hunted. During the day they lie up in long jungle grass, in patches of thick scrub on the edge of a kloof or forest, or in dense reed-beds. In the rains they make cunningly-devised shelters amongst thick bush and long grass, boring their way in, and using their snouts to such good purpose that a long, wide tunnel is soon formed which is almost impervious to the heaviest rains. They feed throughout the night, generally in herds of from four or five to as many as twenty in number; at dawn they retire to their lairs, and seldom move again—except in misty or wet weather, when they feed throughout the day—till evening. They do incalculable damage to the crops of the natives, visiting the same gardens night after night, and trampling down what they do not eat. Their principal food consists of roots, berries, and wild fruit, but they also devour reptiles, eggs, and small birds, and on one occasion a number of them partially ate the carcase of a bushbuck which I had wounded and lost a few days previously. They are expert swimmers and swift of foot, and can get over the roughest ground at a great pace. There is no pluckier beast in Africa than a bush-pig, and even a leopard will hesitate before attacking a full-grown boar. Like all wild creatures they have an instinctive dread of man, and will always make their escape from him if possible; but if surrounded or wounded and brought to bay, they appear to accept the situation with stolid imperturbability, and die fighting with rare pluck against all odds, grim and silent to the last. The young are born in December and January—usually five or six in a litter; they are prettily striped with brown and pale yellow. Bush-pig are very tenacious of life. Their flesh, though somewhat coarse, is most excellent eating in the rainy season.

In my work entitled *In Haunts of Wild Game* I have fully described the style of bush-pig hunting in which I at one time engaged, when the rifle was only occasionally used, the game being brought to bay and killed with assegais. It was then that I learned to respect this beast, and to appreciate

his gallant pluck and splendid fighting qualities ; and I have often thought since, when reading depreciatory remarks about him, how very little those who penned them actually knew of him, and how different a tale they would tell had they ever been—as I have scores of times—face to face with a furious old boar in the middle of a “fast” bush, and only a Swazi “stabbing assegai” with which to kill him. I have seen an old boar after receiving nine thrusts from those terrible weapons, two of which were still fast in him, make a charge that scattered us like chaff, and in three consecutive lunges lame one of our number for life and disembowel two of the finest “pig-dogs” I ever hunted with. In such encounters a boar inflicts terrible wounds with his teeth as well as with his tusks. The plan invariably adopted on these hunts was to take up the spoor from the “mealie fields” in the early morning, and follow it till we marked the pigs down in a certain bush or kloof, which was then immediately surrounded, the dogs loosed, and the pigs brought to bay. A word of advice to any one who may wish to try this form of sport. The regular “stabbing assegai” of the Swazis, although very handy in thick bush, is *too short in the haft* to be of any service in stopping the onrush of a boar. I tried it once, but never again, for I got more pig than “kudos” thereby. The charge must be dodged, as the natives do, and the weapon plunged between the shoulders of the boar ; or a longer haft can be fitted, and, if the bush is not too dense, the charge can be met squarely on the lowered point.¹ Owing to the nature of the country it is absolutely impossible to *ride* a boar, as is the time-honoured custom in the East ; it is therefore quite permissible to use a rifle, game being driven from the bush towards guns posted at likely points of egress, or the sportsman can station himself in one of the runs inside the kloof when it is being driven. But it is tame work compared to tackling them with the assegai.

A .450 bore rifle is the best weapon to use, with either solid or

¹ It is a dangerous thing to try, as the risk of the point glancing from the skull is great.

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expanding bullets. In any case an assegai is useful, as a wounded beast may break back and stand at bay in a "fast" bush, and the timely use of such a weapon might then save many of one's pack from a mauling.

F. VAUGHAN KIRBY.

NYASA BUSH-PIG (*Sus chæropotamus nyasæ*)

NATIVE NAME, *Nguruwe*

The so-called Johnston's bush-pig is known from a skull sent home by the author of this article, obtained at Deep Bay, on the north-west coast of Lake Nyasa. But the present writer has seen alive several specimens of bush-pig in Nyasaland which differed from the ordinary *Sus chæropotamus typicus* by being of a brighter coloration. The coarse hair of the body was permanently spotted and striped with yellowish white, and the white mane, bordered with black hairs, over the neck and ridge of the back was longer and whiter than in the ordinary bush-pig. It is possible, therefore, that these are the outward characteristics of this bush-pig. Osteologically, this animal represents the link between the true pigs (*Sus*) and the bush-pigs (*Potamochoerus*). The head is longer than in the ordinary bush-pig. Though the specimen from which Johnston was determined was obtained on the north-west coast of Lake Nyasa, the living specimens which the present writer refers to the same were seen on Mount Mlanje, in the south-east corner of Nyasaland. It is probable that the range of Johnston's bush-pig, therefore, is the north-eastern portion of the Zambesi basin. The natives do not, so far as the writer knows, distinguish between the two forms, but call both of them *Nguruwe*. This word, or a vocable like it, is the common root for bush-pig throughout Bantu Africa. It is usually, though not always, applied to the domestic pig, whereas there is invariably a different and distinct name for the wart-hog. The natives

thus unconsciously recognise the close relationship which exists between the bush-pigs and the true pigs.

H. H. JOHNSTON.

ABYSSINIAN BUSH-PIG (*Sus chæropotamus hassama*)

Of this pig little is at present known, and even the authorities are not able to agree about it. Mr. Sclater and Herr Nehring have identified it with *Potamochoerus africanus*, which is another name for the bush-pig of South Africa. Another authority, Hartmann, has claimed that it is neither more nor less than the bush-pig of West Africa.¹

H. A. BRYDEN.

WEST AFRICAN BUSH-PIG OR RED RIVER HOG (*Sus porcus*)

The Red River hog of West Africa bears a strong family likeness to the bush-pig of South Africa, but differs from it a good deal in colouring. The hair is always strongly rufous, either bright reddish brown, with a yellowish tint, or a darker reddish yellow. The forehead, ears, and limbs are blackish. The thick mane on the neck and back, part of the margins of the ears, the long ear tufts, and well-marked streaks above and below the eyes are white. This is a striking-looking hog, and the long tufted ears, white marking, and brilliant colouring render it a much handsomer species than its brother of the south. Like the bush-pig of South Africa, it is essentially bush-loving in its habits. It is seldom seen far from water. It is found from Angola to Senegambia and eastward into the interior as far as Monbuttu.

H. A. BRYDEN.

¹ Dr. C. I. Forsyth Major, C.M.Z.S., in an interesting paper on the African bush-pigs, read before the Zoological Society, March 16, 1897, tells us what little is to be gleaned concerning this pig. He says, "The photographs of the skull of a male from Abyssinia, from Heuglin's collections—kindly sent to me by Prof. Eberhard Fraas, Curator of the Stuttgart Natural History Museum—show that whilst approaching *P. porcus* in the strong but low apophyses above the canine, and in the breadth of the upper cranial region anterior to the post-orbital processes, it is very remarkable and distinct from all the other species of *Potamochoerus* (bush-pigs) in the elongation of the hinder part of the skull backwards from the post-orbital processes of the frontals." A plate showing the skull accompanies the paper.

THE HIPPOPOTAMI

Family HIPPOPOTAMIDÆ. Genus HIPPOPOTAMUS

Although nearly related animals, the hippopotami are distinguished from the swine by numerous and easily recognised characters. Among these are the clumsy, long, barrel-like body, the enormous head, with a broad, squared muzzle, and the short, thick legs, terminating in four toes encased in rounded hoofs, all of which touch the ground in walking. Moreover, the middle pair of hoofs are not flattened on their adjacent surfaces, while the lateral pair are not disproportionately small. In the head notable features are the slit-like nostrils, placed rather close together on the highest part of the muzzle, the prominent eyes, which project above the plane of the face, and the small erect ears. The small tail is laterally compressed. Very conspicuous are the huge curved tusks in each jaw, between which, in the lower jaw, the large incisors project almost straight forwards. Very characteristic, too, are the cheek-teeth, the hinder of which show a distinct trefoil pattern on their grinding-surface, while the last in the lower jaw has not the elongated form characterising the swine. With the exception of bristles on the muzzle, face, neck, and tail, the coarse and somewhat warty skin is bare.

In former epochs of the earth's history hippopotami had a wide distribution in the Old World, but are now restricted to Africa, where they are represented by two species.

A. Size very large ; two pairs of lower incisor teeth.

1. Common Hippopotamus (*H. amphibius*).

B. Size much smaller ; normally one pair of lower incisors.

2. Liberian Hippopotamus (*H. liberiensis*)

THE COMMON HIPPOPOTAMUS (*Hippopotamus amphibius*)

Zee-koe (SEA-COW) OF CAPE DUTCH ; *Imvubu* OF ZULUS, SWAZIS, AND MATABELE ; *Kubu* OF BECHUANAS ; *Kiboko* OF SWAHILIS ; *Robi* OF GALLAS ; *Gumare* OF ABYSSINIANS.

At a very distant period of the world's history, when Great Britain formed part of the mainland of Europe, and that continent had not yet become separated from Africa by the Mediterranean Sea, the hippopotamus was an inhabitant of Southern and Western Europe, and must have been a familiar object to the primeval savages who then co-existed with it in the valleys of the Thames and the Seine.

Ages ago, however, the hippopotamus became extinct in Europe, but having extended its range over the whole of the African continent, found a congenial home in the lakes and rivers of that vast territory, in many parts of which it is abundant even to the present day.

In Southern Africa its range has been very much curtailed during the present century, not only by the encroachments of man, but also by the gradual desiccation of the western portion of the country.

Natives now living remember the time when hippopotami were plentiful in the Molopo River, where these animals could not exist at the present day ; and Dr. Livingstone mentions that, according to native report, hippopotami used to live in the river flowing from the spring of Kuruman, which even in his time (1840 to 1850) had become quite a small stream. In the Cape Colony and Natal the hippopotamus has now become quite extinct. An old bull was long allowed to live in the Berg River at no great distance from Cape Town ; but he became vicious and killed a boy, and so had to be destroyed.

This, I think, was between 1860 and 1870, and only last year the fiat went forth for the extermination of the hippopotami that had been long

preserved in Sea Cow Lake near Durban, Natal, as it was found impossible to preserve them any longer owing to the damage they did in the neighbouring sugar plantations. As civilisation advances, hippopotami as well as all other wild animals must gradually give way before it ; and, if not protected, will soon completely disappear within the areas occupied by a settled European population. In Africa south of the Zambesi, however, hippopotami used to be plentiful not many years ago in every lake and river on the east coast, from Zululand to the Zambesi, along the greater part of the course of the Limpopo, and in almost every river in all the vast territory between the latter and the Zambesi. They were also abundant in the Chobi and the Botletlic. During my various journeys I find that I have travelled along the course of the Zambesi for about 1000 miles between the Barotsi valley and the sea ; but although I met with hippopotami in almost every part of the river, I only found these animals really numerous in two places—near Sekhosi, about 40 miles above the junction of the Zambesi with the Chobi, and below the Kariba gorge, in which latter district I saw, in November 1877, over a hundred hippopotami, in herds of fifteen or twenty together, in the course of less than a couple of miles. Hippopotami used to be plentiful in many of the rivers intersecting Matabeleland and Mashunaland, especially in the Umniati and its tributaries on the northern watershed, and in the Lunti to the south. Up to December 1893 a large herd of these animals used to frequent the deep pools of the Umzingwani River, about 40 miles south of Bulawayo. These animals had been protected for many years by Lo Bengula and his father Umziligazi before him, and although one or two were occasionally shot by order of the king, and their dismembered carcases brought by waggon to his head kraal, none of his people were allowed to molest them without his orders, under pain of death ; and thus they became very tame and confiding, and were accustomed to commit great havoc in the corn-fields of the natives living near the pools they frequented. Within a few months of the conquest of Matabeleland

in 1893, all, or nearly all, these hippopotami, which had become quite tame through the protection which had been so long extended to them by the savage chieftain, Lo Bengula, were ruthlessly destroyed by certain white men for the sake of the few ounces of gold they hoped to obtain by the sale of their hides.

Hippopotami are thoroughly nocturnal in their habits, and seldom feed except during the hours of darkness. They eat nothing but grass and reeds. In the day-time they retire to the deep pools of the rivers they frequent, or lie basking in the sun at the tail of some sand-bank, usually half immersed in the water, but sometimes lying quite high and dry on the warm sand. They are capable of standing a considerable amount of cold, since, before the occupation of Mashunaland by Mr. Rhodes's pioneers in 1890, the deep reaches on the upper course of the Hanyani, Umfuli, and Umgezi Rivers used to be frequented by hippopotami all the year round, though the altitude of the surrounding country was over 4500 feet above sea level, and in the winter-time the nights were so cold that if a basin full of water was taken from the river in the evening there would often be a thick skim of ice over it the next morning, and the temperature of the water in the river itself must have been very near freezing point.

Unwieldy mass of flesh as the hippopotamus appears to be, it is a far more active animal than one would suppose. I have seen one of them gallop at a very considerable rate of speed, and at night they habitually travel long distances in some parts of the country in search of food. In walking, the hippopotamus moves the front and hind foot of each side in two parallel lines, thus forming in soft or muddy ground two parallel paths, divided one from another by a little ridge of sand or mud. The same paths are followed year after year, and will often lead one in a bee-line across a bend in a river, from one deep pool to another, through miles of dense jungle, or over rocky, broken hills, into which one would imagine that no hippopotamus would ever venture. On the Lower Umfuli River in

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Northern Mashunaland there are places where the stream has cut a channel through beds of very hard rock, enclosed between ranges of low stony hills ; and in such localities the hippopotami have, in the course of countless ages, worn well-defined paths in the hard rock, leading from one deep pool to another. These paths worn into the stone present exactly the appearance of a hippopotamus path freshly made in soft ground ; that is, there is a low ridge of stone running down their centres, corresponding to the little ridge of mud always present in the middle of a new-made hippopotamus path, caused, as I have already explained, by the fact that these animals move their feet in two parallel lines. I remember noticing, too, that in certain places on these rock-paths where a sudden ascent had to be made to a higher ledge, the edges of the higher levels of hard rock had always been most beautifully polished by the bellies of the countless numbers of hippopotami that in the course of ages had rubbed against them.

Where hippopotami have never been fired at, they are very tame and even inquisitive. I remember finding a herd in a small rock-pool on the Lower Umfuli River, which, probably, had never seen a man with any kind of clothes on before, as they showed no fear whatever, but, as I sat on a rock at the edge of the pool, all came up within a few yards of me, and remained with their heads in full view for a long time, staring stolidly at the unwonted sight, and continually twitching their little ears. In large rivers like the Zambesi, Shire, or Chobi, where the hippopotami have been hunted by the natives for ages past, they are usually pretty wide awake, and often inclined to be vicious. The natives always endeavour to give them a wide berth when travelling with loaded canoes, and the many mishaps that are continually taking place prove that they have reason for their caution. Doubtless, canoes are sometimes overturned accidentally by a hippopotamus coming in contact with it as he rises to the surface to take breath ; but old bulls and cows with very young calves often attack canoes

most viciously, and, after capsizing them, will sometimes pursue and kill by a bite one or more of their occupants. A hippopotamus cow with a very small calf attacked a canoe of mine on the Upper Zambesi in 1888. She first came up beneath it, throwing one end out of the water, then made a second attack, and, raising her huge head aloft, laid it across the canoe and sank it.

This was in October, and the little calf I have mentioned could only



FIG. 51.—Hippopotamus shot and photographed by Mr. Poulett-Weatherley in British Central Africa.

have been newly born, but whether this is the usual time of year for hippopotami to calve, or whether they calve every year, I do not know. When very young, hippopotamus calves seem to stand on their mothers' shoulders in the water, as sometimes a tiny head will be seen to appear on the surface and take breath, just before the mother's head is raised a little in front of it. Hippopotami may usually be seen in small herds of from four or five to a dozen together, but I have repeatedly seen as many as twenty, or even thirty in one herd. The old bulls often live alone, and

are very noisy at nights, their loud grunting bellow being one of the most familiar sounds on an African river. Towards the end of the rainy season, about March or April in South Africa, hippopotami become excessively fat, and the meat of a young cow in good condition is exceedingly good ; in my own opinion better than that of any antelope.

An old bull is, of course, always very tough and usually very lean. Hippopotamus meat is dark red in colour, and in flavour more resembles beef than pork. Hippopotami are usually killed by Europeans by a shot in the brain as they raise their heads above the surface of the water to breathe. It is as well to take time and try and make sure of the first shot, as, where they have been much persecuted, hippopotami do not give very easy chances after the first shot has been fired, as they then know what to expect. Sometimes they will not show any part of their heads but their great square snouts, as they draw in their breath through their nostrils ; and sometimes they will disappear altogether after the first shot, and never show themselves again, though the pool in which they are may be watched for hours. In such cases I believe that they raise their nostrils above the water in the shelter of some overhanging bush, and lie there breathing noiselessly until dark, when they will leave the pool in which they have been molested and travel up or down the river to a safer locality, perhaps 20 or 25 miles away, a distance which they can cover in the course of the night. Once whilst trying to shoot a hippopotamus in the Zambesi—the very animal which capsized my canoe, as related above—I took the times with my watch, during more than an hour, that it remained under water in the intervals of breathing. The shortest time was forty seconds, and the longest four minutes and twenty seconds ; the usual time being from two to two and a half minutes. It always remained longest under water after having been fired at, though on such occasions it must have gone down without having taken a full breath. When killed by a shot in the brain, a hippopotamus at once sinks to the bottom, and if the water is cold and deep the carcase

will not rise to the surface for six hours, or sometimes even longer. When the water is warm the carcase will rise in about three hours. The natives armed with guns shoot too badly as a rule to be able to hit hippopotami in the brain, as they lie in the rivers during the day-time, but they kill a good many by shooting them in the body as they come out to feed at nights. Before they had guns, and where they still have no guns, the natives kill hippopotami in various ways. Pitfalls are often dug in their paths, or dreadful traps set over them, but they become wonderfully cunning, and but few, I believe, are killed by these means. In the Zambesi and other large rivers many are harpooned ; but the cruellest and at the same time the most destructive method of killing hippopotami that I ever heard of was that formerly practised by the natives of Northern Mashunaland, who used to starve whole herds of these animals to death. To accomplish this work of destruction a whole tribe would co-operate, and, having found a herd of hippopotami in a suitable pool, would fence it in, and, by keeping up fires all night and beating drums, prevent the imprisoned animals from breaking out, and then slowly starve them to death. I once, whilst journeying along the course of the Ummati River, came upon a native tribe engaged in destroying a herd of hippopotami in this way. When I reached the scene of operations there were still ten hippopotami alive in the pool. Of these, eight were standing on a submerged sand-bank with more than half their bodies above the water, all huddled together with their heads resting on one another's bodies. Two more were swimming round, each with a heavy assegai sticking in its back ; whilst several must already have been killed or starved to death, as an immense quantity of meat was hanging in festoons on the trees all round the pool. From what I could learn, this pool had been enclosed for about three weeks, during which time the natives said that the hippopotami had had nothing to eat but water. Altogether I think that a herd of at least twenty must have been destroyed on this occasion. The flesh of these animals, however, supplied a whole tribe with

food, and not an ounce of the meat was wasted. Without protection it is not likely that hippopotami will long survive in any of the small rivers intersecting the countries between the Zambesi and the Limpopo which are now being colonised by Europeans, as the average European is quite as destructively inclined as the African savage, and a good deal more skilful in the use of a rifle ; but these animals will probably survive for a long time to come in the rivers which flow into the Indian Ocean, between St. Lucia Bay and the Zambesi, as well as along the whole course of that river itself, and its chief tributaries, such as the Shiré, Loangwa, Kafukwe, Chobi, and many lesser streams ; such is my opinion, and if I am right in this conjecture that the hippopotamus is likely to hold its own for a long time to come on the Zambesi and its tributaries, it can only be in the dim and distant future that this supremely ugly, yet most interesting survival from pleistocene times will be finally banished from all the fever-stricken swamps and rivers of so vast a territory as Equatorial Africa, and when that day comes this will be but a poor world for a lover of nature to live in.

F. C. SELOUS.

DISTRIBUTION OF HIPPOPOTAMUS IN EAST AND NORTH AFRICA

North of the Zambesi there are no rivers of any size in which the hippopotamus does not exist. In the Zambesi itself they are abundant, though not so numerous as formerly in the lower part, owing partly to shooting, and also to the increased traffic. In the Shiré River they at one time constituted a source of danger, Sir H. H. Johnston remarking that they were very vicious, and fond of pursuing and upsetting canoes, so that their destruction then up to a certain point was rather encouraged than otherwise. Indeed, few travellers who have done much canoe-work where these animals abound have escaped their warlike demonstrations, sometimes from an old bull, at others from a cow whose maternal fears for

its young calf have been aroused. A wounded hippo will often charge the boat from which the shot that wounded it was fired ; and occasionally, when the sportsman has been very close to the water's edge, it has been known to leave the water and charge for a short distance, but it does not follow up. Hippos are equally at home in salt as in fresh water, and the brackish water at the mouths of many East African rivers is a favourite resort of theirs, as for instance the Zambesi, Pangani, etc.

Some of the African lakes are more of the nature of a marsh than an actual sheet of water, their extent and depth varying according to whether



FIG. 52.—Hippos in Juba River, East Africa. Photographed by Lord Delamere.

the season is wet or dry. Such is Lake Chilwa, sometimes called Lake Shirwa, and here it would appear as if hippos were only visitors, not residents, as Sir H. H. Johnston remarks that they are said to come to this lake at certain times of year, travelling overland from the Shiré River. A detached part of this marsh is brackish. Lakes Mweru, Bangweolo, Nyasa, and Tanganyika all hold hippos in more or less abundance.

Lying to the south-east of Lake Bangweolo is a small sheet of water called Moir's Lake. In a letter which appeared in one of the daily papers, it is stated that hippos at one time inhabited this lake, but the natives of

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the surrounding district declared that the "Nzoi" (*Tragelaphus spekei*) had killed them out. Another of these shallow, swampy places, more marsh than open water, inhabited by hippos is Ngiri, lying to the north of Kilimanjaro. Here huge papyrus reeds come up to the edge of the dryer ground, and amongst this tangled mass the grunting of these creatures may be heard by day ; while at night they leave their cover to wander about in the open space round the camping ground.

British East Africa having been opened to sportsmen only in comparatively recent times, the species is still abundant there, and is likely to remain so, as the natives have few or no guns, and possess few means of killing it. They are abundant in Lake Jipè near Kilimanjaro, but are said to be inferior in size and in teeth to those met with in the rivers. Mr. Jackson, who has had more experience of East African game than any other sportsman, considers that the hippos on the Athi River north of Machato's have finer teeth than those from any other locality in that part of Africa. The same authority found them more plentiful in the river Nzoia in Northern Kavirondo than in any other place he visited.

In every other lake in East Africa—Naivasha, Baringo, Victoria, Rudolf, and Stephanie—hippos are to be found in abundance, as well as in all the rivers, so far as the country has been explored, as far north as the Guaro Nyiro. Between this and the Shebeyli River, which runs south of the Agaden, the country is little known to Europeans, but in that river they again appear.

From our earliest schooldays the fact that the hippopotamus dwells in the Nile has been impressed on us, and the same still holds good. It is doubtful if any exist in the main stream below Khartum, but in the Abyssinian tributaries, such as the Atbara, and again in its tributaries the Sittite, Salaam, Royan, etc., the species is (or was) still to be found ; but the Soudan has been so long closed to Europeans that there is little or no late information as to the amount of game now existing there.

T. E. BUCKLEY.

LIBERIAN HIPPOPOTAMUS (*Hippopotamus liberiensis*)CALLED BY LIBERIANS, *Sea Cow* OR *Water Cow* ; *Mali* OF VEY

This rare and interesting animal is a dwarf form which is only found in West Africa.

A full-grown male measures 1.4 metres in length of body : only 80 centimetres high ; female a little smaller. Without regard to its small size and several other characteristics, it differs from the hippopotamus by having a smaller number of incisors in the lower jaw—two instead of four.

It is an extraordinarily robust animal. The upper surface is a shiny greenish blue-black, which changes on the under surface from gray-green to yellowish green. In its habits of living it more resembles a pig than its namesake ; it does not, however, like the latter, live in troops, but roams about the forest in pairs. Each pair occupies a wide area ; therefore, though everywhere well known, it is nowhere abundant. Forest and marsh form its habitat. The pigmy hippo seldom goes into water except for a bath, or to cross a river, but wanders through the bush like a wild pig. They feed in the forests at night on young shoots, grass, and fruits, and sleep the best part of the day, so heavily that you can crawl up to them and kill them. It is easily recognised by the spoor, which is broad and deep, like an elephant's ; in marshes also they can readily be identified, as the body leaves a track upon the mud. The flesh, especially that of the young animal, is succulent, and reminds one of wild pig.

Jentink says this hippopotamus is not found in rivers ; marshes or forest are its favourite haunt ; its general habits resemble those of wild swine. It has a scattered distribution where found, and is not local in its habits, and this renders the chase difficult and uncertain.

It has wandering habits and covers a large extent of ground, using different paths. Feeds on wild fruits and herbs. Found in high and low

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bush. Hides itself in impassable and many different places ; and is difficult to hunt for this reason. It is uncertain whether it feeds by night or day—probably the latter. It seems to be certain that this animal does not live in herds like *H. amphibius*. It roams over the forest in pairs or alone. Each pair covers a wide area ; and these animals, though in no locality abundant, were known at any rate by name in all the districts through which I travelled.

PERCY RENDALL.

CARNIVOROUS MAMMALS

ORDER CARNIVORA

CATS AND LYNXES

Family FELIDÆ. *Genus* FELIS

The characters by which the Carnivora differ from the Hoofed Mammals are for the most part so familiar to all, that they need not be recapitulated in detail. Especial importance attaches to the teeth, which are more or less modified for the needs of a diet composed largely or exclusively of flesh ; one characteristic feature of the land members of the order being the pair of so-called carnassial teeth in each jaw, which bite against one another, and in the most advanced types have an action comparable to that of the blades of a pair of scissors. Fully as important are the characters of the toes, which are frequently five in number, and always terminate in claws instead of hoofs or nails.

The *Felidæ* may be regarded as the most advanced type of the Carnivora, as is attested by their short and rounded heads, the reduced number and highly modified characters of their teeth, and their strongly curved claws, which can be more or less completely retracted within special protective sheaths. The carnassial teeth have a perfectly scissor-like action, and

form the main armament of the sides of the mouth ; the lower carnassial being absolutely the last tooth in the jaw, while the corresponding upper tooth has only one small and unimportant molar behind it. All the members of the family walk entirely upon their toes, and are thus termed digitigrade ; the front toes being five, and the hind four in number.

The cats and lynxes, constituting the widely-spread genus *Felis*, have the claws capable of complete retraction within their protecting sheaths. The external appearance and coloration of the various kinds of these lithe and graceful animals being more or less familiar to all, it will suffice to state that there are nine well-marked African species of the genus all of which seem entitled to be classed under the category of game.

A. Ears smooth, or with only small terminal tufts.

1. The Lion (*F. leo*).
2. „ Leopard (*F. pardus*).
3. „ Serval (*F. serval*).¹
4. „ Red Tiger-Cat (*F. chrysothrix*).
5. „ Gray Tiger-Cat (*F. celidogaster*).
6. „ Kaffir Cat (*F. caffra*).
7. „ Jungle-Cat (*F. chaus*).
8. „ Booted-Cat (*F. maniculata*).

B. Ears with long terminal tufts of hair.

9. The Caracal, or African Lynx (*F. caracal*).

THE LION (*Felis leo*)

IN SOUTH-EAST AFRICA

Leeuw OF THE BOERS ; *Ingonyama*, *Imbubi*, AND *Ibubesi* OF THE ZULUS AND SWAZIS ; *Ibulubesi* OF THE MATONGA AND MASHANGANA ; *Tau* OF THE BASUTO AND BECHUANAS ; *Nkango* OF THE LOWER ZAMBESI NATIVES.

The general appearance of the lion is too well known to need detailed

¹ The Togo serval (*F. togensis*) is probably only a local race, not specifically separable.

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description. Varying in colour from pale silvery or tawny to dark tawny, and more rarely dark gray with a warm brown suffusion, no two skins are exactly alike in shade. Lions are usually darker than lionesses, but the latter retain on their lower limbs the bars and spots of cubhood (declaring their descent from a less uniformly-coloured ancestry) more distinctly than the former. Lions without a vestige of mane are sometimes met with ; and when the mane is present, it varies greatly in quantity and colour in individuals. No tenable theory has yet been advanced to account for the paucity or absence of mane in some cases ; the idea that the dense bush in certain localities drags it out, and that, *ergo*, lions inhabiting open districts should have good manes, has no foundation in fact. I think the cause is purely constitutional. The mane is usually bright tawny yellow on the cheeks, and may be so throughout, with a darker tint at the tips on shoulder and neck ; or it may be deep brownish yellow, or, in finer and rarer specimens, dark brownish black with black tips ; in old animals the mane is often grizzled with white hairs. Commencing to grow at three years, it attains its full size when the animal is between six and seven years old.¹ The horny appendage in the brush at a lion's tail-tip is not always constant ; its length is from 8 to 12 millimetres, and its use is not known. The pupils of the eyes are circular, the claws fully retractile, powerful, and trenchant. They are never exposed when a lion is walking, but often thrown out by a wounded lion when moving rapidly. The thumb-claw of a large lion I shot last year measured $3\frac{7}{8}$ inches in length, and $1\frac{3}{8}$ inches in basal width. The size of lions is a fruitful theme of discussion amongst sportsmen, and I have heard some surprising statements made on the subject. Careful observation has convinced me that an average full-grown male measures about 9 feet from tip to tip in a straight line : *i.e.* from nose to root of tail, 6 feet ; tail, 2 feet 10 inches to 3 feet ; vertical

¹ Full-maned lions always have tufts of hair in the armpits, on the elbows, and on the flanks, but never any long hair under the belly.

standing height, 3 feet 4 inches. This, measured "over all, sportsman's style," would be a 9 foot 6 inch lion. Many will look askance at these figures, but let them shoot a few, then tape and record faithfully, and I know that for one which exceeds, eleven will not attain these dimensions. I have certainly shot some much larger, but they were *big*, not *average* lions. Mr. F. C. Selous records the dimensions of two of his big lions as follows:—

Extreme length in a straight line before skinning—Naturalist's measurements.	Length of the flat skin (raw). ¹	Perpendicular shoulder height.	Girth of the forearm.	Girth behind the shoulder.	Weight.	District in which shot.
9 ft. 11 in.	11 ft. 9 in.	3 ft. 8 in.	...	...	410 lbs.	Hartley Hills, Mashunaland. Pungwi Dist., P.E.A. ²
9 " 1 "	11 "	3 " 4 "	17 in.	48½ in.	...	

The following are the dimensions of my four best lions:—

Naturalist's measurements.			Sportsman's measurements.					Length of skull.	District in which shot.
Before skinning.									
Length in a straight line from tip of nose to root of tail.	Length of tail.	Extreme length over all.	Length of flat skin (raw). ¹	Perpendicular shoulder height.	Girth of forearm.	Girth behind the shoulder.			
7 ft. 2 in.	2 ft. 11 in.	10 ft. 7 in.	11 ft. 4 in.	3 ft. 8 in.	20 in.	59 in.	16 in.	Chiringoma, P.E.A.	
6 " 8 "	2 " 11 "	10 " 5 "	10 " 10½	3 " 7½	19 "	54 "	16½ "	Libombo Mountains.	
6 " 8 "	2 " 10 "	9 " 11 "	10 " 6½	3 " 6 "	...	53 "	15 "	Chiringoma, P.E.A.	
6 " 4 "	3 " ...	10 " 3 "	10 " 5½	3 " 6 "	18 "	49 "	15½ "	Matamiri Bush.	

I estimated the weight of my largest lion at over 500 lbs., but "estimates" are unreliable; unfortunately we have few reliable records upon the subject. Probably Mr. Selous' opinion that a lion weighing

¹ I give these measurements, although for useful practical purposes they are unreliable, as a skin can be stretched to any length.

² Portuguese East Africa.

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much over 400 lbs. is an exceptionally heavy animal is a correct one. An average full-grown lioness does not measure more than 8 feet 6 inches over all—standing height, 3 feet to 3 feet 2 inches. I have not shot any much larger—8 feet 10 inches and 8 feet 7½ inches are my best ; the former had a shoulder height of 3 feet 3 inches.

The following remarks upon the character of lions, even if not in accordance with opinions formed by others, are the result of much careful observation and considerable experience in hunting these beasts. Individual lions in one district differ greatly in disposition, as do lions in one part of the continent from those of another ; and, moreover, the writer's personality has to be reckoned with. Dr. Livingstone's lions and the uncanny beasts of Jules Gérard were totally different creatures. The true lion is neither cur nor fiend, and is only magnanimous when his stomach is full. They have an inborn dislike to man's presence ; therefore, if met in the daytime, usually give way, perhaps after a moment's survey of the intruder, accompanied by a put-out sort of growl and a flourish of the tail. They often make a demonstration to frighten any one who disturbs them at a carcass, but it is more bark than bite, and, if faced firmly, they will retire, growling. There are many exceptions, however, and a savage or hungry lion, or lioness with cubs, will charge without hesitation. Essentially nocturnal in their habits, they are justly dreaded at night, when they become bold, fierce, and aggressive ; and, as they generally make use of game-tracks or foot-paths when moving about, the risk of walking along these at night, in districts infested by lions, is very great, for the savage, hungry brute will be encountered sooner or later, and then the fragments would not be worth collecting. A lion is seen at his best, or worst, when at bay, standing with lowered head and crest erect, his tufted tail twitching, his lips drawn back from the red gums and great white fangs, and living fire flashing from his eyes, while he keeps up an incessant hoarse growling. I venture to think that no animal on earth can look more utterly savage than a lion under

such circumstances, and the sportsman who faces him must "hold straight." To follow a wounded lion into thick cover is a most dangerous proceeding, and calls for the utmost coolness and nerve; the animal invariably sees the sportsman before he sees it, and in most cases charges. The lion's roar is one of its most marked characteristics, and, when heard at night, pealing through the forest, is inexpressibly grand, almost, if not quite, the most sublime sound in nature. When several lions are roaring in concert, near to the listener, the volume of sound is tremendous; the air vibrates and the very ground trembles. Heard amidst the uproar of a tropical night-storm, when the withering lightning's flash tears the sky in twain, leaving pitchy blackness behind, it is truly awe-inspiring, and causes the lonely hunter to crouch closer to his half-drenched camp-fire, and grip his rifle with a fierce energy born of the knowledge that "Fear" is abroad in the jungle.

Civilisation's steady march in South Africa during the past twenty years has considerably limited the range of the lion. The vast herds of game upon which he depended for food being swept away, he has been forced to retire into remoter regions. From much of the South Africa of Gordon Cumming he has vanished completely and for ever; many parts of Mashunaland and Matabeleland, and of the Transvaal "Low Country," will never again resound with his mighty voice. A few still linger in Zululand and Swaziland, in Amatongaland and the Libombo range. They are still numerous in the wilder parts of Rhodesia, in Ngamiland, Khama's country, along the Limpopo River, and in the Matamiri bush. In Umlivan's country, along the Buzi River, in the Pungwi and Chiringoma districts, P.E.A., particularly near Jakota, which is infested with them, they are probably more numerous than in any other part of South Africa. Lions drink once daily, either between 6 and 9 P.M. or between 3 and 6 A.M., sometimes oftener in hot weather; after a full feed at night they invariably drink before seeking their lairs, and if the kill is near water, they will

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drink at frequent intervals during a meal. Their lairs may be almost anywhere : in a dense reed-bed, an impenetrable thorn-thicket, a hollow full of long grass, or under any thick patch of bush ; but only in quite undisturbed country do they lie up by their kill during the day. They roar loudest on dark frosty nights, and but seldom on bright moonlight nights and in sultry weather. In disturbed districts they become very silent at all times, and utter no sound when prowling for a kill. In wet, cloudy weather they are very restless, and often travel great distances. In such weather I have often heard them uttering their low muffled moans throughout the day ; and it is at such times that they are most likely to attack a camp. Two, three, or four lions are more frequently encountered than solitary individuals, and larger numbers often band together for mutual assistance in securing their prey. The largest troop I have seen numbered twelve individuals ; but I have heard of fifteen. Lions kill hornless animals and small antelope by biting them in the throat or at the back of the neck ; or, like the larger antelopes, the animal may be rushed from in front, seized by the throat, and thrown back on to its haunches, thus frequently dislocating the neck, and sometimes breaking a leg. Heavier animals are often dragged down by the flanks, or are seized by the shoulders, and the nose clutched and dragged down by one paw ; the first mad forward plunge of the victim brings it down on to its head, and the neck is at once broken. Last year I saw a huge lion pulling down a wounded buffalo bull in this fashion. I never met with an instance of a lion deliberately killing an animal with a blow of its paw, but I have witnessed proof of the terrible strength of such a blow.¹ In chasing its prey, however, a lion often strikes a disabling blow over the loins or on the hind-leg, and I have seen a wart-hog boar, a hyæna, and several impala that have thus been struck down. When lions have secured a kill they disembowel it very neatly, through an opening in the flank, then bury the

¹ In *Hunts of Wild Game*, p. 404.

entrails, which I have never known to be eaten, though Mr. Selous has recorded a single instance of this being done. The ears are often bitten off, and the tongue torn out. The viscera are first eaten, then the soft flesh of the buttocks or inside of the thighs is torn off and bolted in great mouthfuls with pieces of skin attached; the brisket and adjacent soft parts are then eaten if the animal is fat, but no hard bones. When leaving their kill, they often scrape up a quantity of rubbish, leaves, etc., on to it, and when returning to it again, almost invariably drag it to another spot, even if they only move it a few yards. A hungry lion will eat almost anything. I have taken a porcupine's head and portions of a large field-rat from the stomach of a lioness. It is a common thing to find lions stuck all over the nose, face, and paws with porcupine-quills, and I have seen a lioness (shot by my friends Messrs. Barber and Bowker) completely blinded with them. A young or lightly-built lioness is quite capable of climbing a tree, and there is an authentic instance of a young male climbing into a low bushy tree;¹ but I do not believe that a full-grown male lion could do this. I have measured the distance covered in a single spring by a heavy lioness, from a bank 4 feet high, 21½ feet, but I think they seldom exert themselves to this extent. Even at the present day there exist misconceptions regarding lions. They never *carry* even the smallest antelope clear of the ground, but seize it by head or neck and *drag* it. It is a physical impossibility for so comparatively low-standing an animal as a lion to lift and carry even an impala clear of the ground, much less an ox or even a calf, to say nothing of leaping a fence with such a burden. Lions seldom spring any fence, but will wriggle themselves under or force their way through. They never "suck the blood" of a victim, but will eat the clotted blood which collects inside a wounded beast. They are cannibals on rare occasions, though I have never met with an instance. They like their meat not only high, but in an advanced state of putrefaction, and rather prefer that it should be killed for

¹ In *Hunts of Wild Game*, p. 398.

them. For this reason they invariably collect in the vicinity of a hunter's camp. I know many exceptions, particularly on the Urema flats, P.E.A., where I have placed forty baits from time to time, but though lions abounded and often walked round and inspected these baits, they only twice ate of them. Man-eaters are rare in South Africa. In all my experience I have only met one, a cunning old lioness, which, as fully related in my work on African sport, I shot after no end of trouble. I assisted to kill another, a young male, which I may call a potential man-eater, its only known deviation from the path of duty, up till the day of its death, having been the killing and eating of one native woman. In the Pungwe district, however, several natives have at different times made the acquaintance of the internal economy of lions. Lionesses have no fixed breeding season, but cubs are usually born in March and April; two or three is the usual number in a litter, rarely four, and their eyes are fully open at birth. They are barred with transverse stripes, and thickly spotted on the limbs. These marks are lost as they grow older, only a very few spots being retained on the lower limbs of adults. The fur is thick and woolly. At from five to six months old they accompany their mother to a kill, and game is fearfully mangled by young lions of ten or twelve months old, when undergoing tuition in the art of killing under their parents' watchful eyes. Comparatively few male cubs reach maturity, hence the disparity between the numbers of each sex. The males are said to be monogamous, and I have myself thought so, but I could not now express a decided opinion, as single lions are so often seen with two or three lionesses, and the relative numbers of both sexes are so disproportionate that I think the theory of monogamy is open to question. At all events the lion hunts for the parturient lioness, and evinces the greatest affection for his partner.

Lions may be systematically hunted in three ways, given here in order of preference—by visiting their own kill, or a placed bait (for the kill is hard to find in a country where vultures and hyænas abound),

between dawn and daylight, and shooting them at it ; by night-watching at bait or kill ; and by spooring them to their lairs during the day. I will dismiss the latter alternative by saying that disappointments will be numerous, for over ordinary country it is extremely difficult to follow such light-treading animals, and, if put up many times, they become extremely wary. Last year, after spooring three for several miles, we put them up in a dense thorn-thicket, where I and my two attendants had to creep on all-fours ; the brutes kept getting up in front of us, for they always saw us first and treated us to a growl before moving on. Three times we followed them round inside this horrible place, but never once saw them, although we frequently saw the impala standing with outstretched necks, watching them, and snorting loudly. The very best plan is to stalk them at dawn, having marked the lie of the ground near the bait, so as to be able to approach to within range before daylight, and with the wind from any direction. If it is their own kill, a shot at them is then almost a certainty, but if a placed bait, of course it may not have been found ; under any circumstances the chances are bettered, first—by dragging it across several game-tracks on the previous evening ; secondly, by placing it *near water* : this invariably tempts the lion to stop an hour later than he would otherwise do. If hyænas are numerous, the bait must be placed in a tree at least 8 feet from the ground. Vulture or hyæna-scares will not frighten lions away. If the sportsman arrives late at a bait, watch the vultures—if some are sitting in the trees and others flying over them, evidently afraid to settle, hurry up, but move with caution, for there is surely some sort of wild beast at it.

Watching at night is intensely exciting, and I cannot agree with those who think it unsportsmanlike. It certainly is so if the watch is from a tree, though I have often adopted this from sheer necessity ; and it has only one advantage to recommend it, that you have nothing to fear from the wind—but it is very difficult to make out a beast on the ground below you.

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It is absolutely necessary to make yourself comfortable *before* the lions arrive, as that is the moment when excitement is apt to make you feel *uncomfortable*. Having sat in a *scherm* one night for three lions, which winded me and decamped, I tried a tree next night, and, just as they came, endeavoured to shift myself from a cramped position, when the stage gave way and I fell to the ground, nearly 12 feet. The attendant who was with me succeeded in holding on to a branch. The lions growled ominously, but in the silence that followed they cleared out. The best plan, after all, for night-watching is to place the bait in a shallow creek and make a shelter of branches on the bank, 20 feet from the bait, below wind—the bait must have been previously dragged in such a way that lions coming along the drag will be seen, at any rate a few moments before they reach the carcase. If you are dealing with their own kill, you will note the direction of their departing spoor, and build your *scherm* accordingly, remembering that they are nearly sure to return *along the same track*; or a shooting hole can be made, covered in with logs and thorn branches. It should be $5\frac{1}{2}$ feet long, 4 feet wide, and 3 feet to 4 feet deep, and a hole must be left to shoot through. I have nearly been hooked out of one of these by a lion, owing to the hole being too narrow to admit of my turning, and partly to my somnolent condition, so I do not very strongly recommend the plan. Moonlight should be chosen for night-watching, otherwise it is very difficult to make out a lion even when only six or eight paces distant. Blue-lights are often useful; in my previous work I have dealt exhaustively with this subject. It does not pay to have a boy with you; they *will* sleep, and *inevitably snore*. When the lions come, *be quite ready*, but *do not fire hurriedly*. I prefer to let them feed for an hour. It is most interesting to watch them by moonlight. But when you *do* fire, *aim low*; one is very apt to *overshoot at night*. Do not leave the *scherm* if one is shot, for the others, if there was a party, are quite likely to return. Always be prepared against the rush of a wounded beast. I have been through

that experience also, and it is just a little too exciting ; for that reason I never fire at a lion facing me, at night, except of course in self-defence.

I will now relate an adventure I had with lions in May 1894, near Majekan's kraal in the Sabi Poort, on my way down to Delagoa Bay. The night we reached this camp some lions roared freely after midnight, about 2 miles away, and as they continued their moaning grunts after daylight, always apparently in the same spot, I thought they might possibly have a kill in that direction, so I set out with a couple of boys to hunt them up. An hour's walk, during which the lions seldom ceased grunting, brought us near the spot, and we found the fresh spoor of a male lion which had been chasing a hyæna, and, close by, his returning spoor, which we followed through a stony spruit and up a slight incline towards a thick grove of trees and some dense scrub-bush on the ridge. I now distinctly heard the growl of a lion in that direction, and, from some spot nearer, the worrying, snarling sound of a creature eating at a carcass. Within 30 yards of the trees lay a dead hyæna, and I walked towards it, keenly alert, trying to make out amongst the trees the creature that was eating ; but I was all the time overlooking it, for it lay in a patch of grass just beyond the hyæna—a fine young lion cub, about six months old. I pulled up instantly, expecting each moment to see the lioness, but heard her give a deep purring call to her cub from the top of the ridge, and the little beast instantly scampered off as fast as its enormously distended belly would permit, while I ran to try and intercept it. On the ridge the cub turned to the left, while the lioness was growling on the right. The low scrub was very thick, but as I ran on I saw four or five great yellow objects trotting along in front of me. One of these almost immediately pulled up, and turned, facing me, growling furiously. Though close, it was a difficult shot through the thick scrub, but thinking it was the mother of the cub, and that she was about to charge, I fired at once, tumbling her on to her head, roaring tremendously. Unfortunately my rifle was single-barrelled,

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and as my boy was lagging behind with the double-12, I lost the chance of giving her another shot, as she picked herself up and made off after the others. I ran in pursuit, and reached the bank of a wide creek in time to see a fine old male lion entering the bush on the other side: it was a snapshot, but by the way he growled I thought I hit him somewhere. Before following them, I went back to try and secure the cub, but found that it had rejoined its mother (which evidently was not the lioness I wounded) and gone off in another direction. The lions had killed three impalas and dragged the remains into the grove of trees, and the hyæna, an old dog, had probably been killed for trying to annex a feed. His right hind-leg was broken and nearly torn from the body, and there were fang-wounds in the head. We followed the blood-spoor for over two miles, always in the direction of camp, the lion and three lionesses¹ keeping together, but eventually lost it in a dense thorn-jungle close to camp; and, as we were all hungry, I resolved to go to the tent and get something to eat, and tackle them again afterwards. I found a brother sportsman awaiting my arrival, Mr. C. E. Parsons, a gentleman who had been shooting through Portuguese Territory, and he at once consented to accompany me back to the spot, and help hunt up the wounded lions. However, we met with no better luck than before, so I suggested our separating, and each making a long forward cast, he with one boy to the right, I with another to the left. This plan was so far successful, that, while crawling on hands and knees through some dense bush, on the bank of a deep, dry river-bed, I found, first a single blood-spot, then, 20 feet beyond, a broad smear of it on some long dry grass at the edge of the bank. I at once whispered to my boy to go and fetch Mr. Parsons, and when he had crept away, I clambered down the bank—a drop of over 8 feet. As I was

¹ The spoors of adults of each sex are easily distinguishable, one from the other, those of the fore-foot of the lion being disproportionately larger than those of the hind-foot, whereas those of the fore and hind-feet of the lioness are nearly of equal size.

in the act of doing so, a loud growl saluted me from a spot under the bank, which here overhung considerably, the scour of the water round the bend in flood-time having washed it out. As I gained my feet and turned quickly, I saw a lion standing under the bank, watching me, looking very grand but very fierce, with crest defiantly erect, and a savage gleam in his eyes; while a few yards beyond him a lioness lay on the sand, whisking her tail about and also watching me intently, but in silence. I mentally thanked my stars that I had my double-12 rifle, as, almost immediately I found footing, the lion advanced a few steps, growling hoarsely (he was then eleven measured paces from me), holding his head low and twitching his tail from side to side, while his eyes were fixed on mine with a look of concentrated rage. It does not do to hesitate at such a moment, and as he jerked his tail up (a lion often does this, and *always* charges after doing so), I knelt down, got a quick sight on his chest, and fired. He reared up on his hind-legs, roaring loudly and clawing at the air, then fell back dead. It all happened then in a moment. Through the smoke I saw the lioness spring to her feet and rush towards me. Escape was impossible—a huge tree-trunk lay across the river-bed behind me, the banks were unscalable at a moment's notice—and with desperate coolness I fired my remaining barrel as she came on, uttering hoarse coughing grunts and flashing fire from her eyes. I missed her clean, and as the bullet struck the sand up under her belly and I saw that I had failed to stop her, I took a step backwards in the futile hope of getting another cartridge into my rifle, and fell, scarcely two lengths in front of the furious beast. Had she been wounded nothing could have saved me from a mauling, or worse; but, whether because she was unhurt, or because she saw my companion appear at that moment on the bank above, I cannot say, at all events she swerved to one side, sprang lightly on to the fallen tree, where Mr. Parsons missed a shot at her, and thence on to the bank, where a second shot told loudly and received an answering growl. She now got away into some

thorn-bush, where we followed her, after I had taken my single rifle from the boy (the double-12 was useless, the breech-action being choked with sand), and shot her without further incident. My companion, who was elated at thus securing his first lion, said he saw the charge, and saw her swerve as he reached the bank ; his second shot had hit her high and far back in the flank, partly paralysing her hindquarters. My lion was a splendid old male. My first shot at him was nearly a miss, the bullet having passed through the fleshy part of the hind leg, inside, grazed the belly, and entered the brisket obliquely ; the 12-bore bullet had passed through his heart and completely raked him.¹

Regarding rifles for lion-shooting, I should think a good double Lee-Metford would prove very efficient, but have no experience of them for this work. I have shot lions with several kinds of weapons, but unhesitatingly give the preference to the .461 Metford ; it never fails to stop a lion if held straight, for a lion is a very easily killed beast, if hit in the right place, and is nothing like as tough as the antelopes. I have used various charges, No. 1 Gibbs 75/540, No. 1 Gibbs Express 90/360, and No. 2 Gibbs Express 90/570, and although I have shot more lions with the 90/360, I consider the No. 2 the most efficient ; either, however, are admirable. All rifles for use against lions and other dangerous game should be *double*. As lion-shooting is so often done in the half-light of morning and evening, the standing back-sight should be roughed and undercut ; this does away with all shimmering in the open V, while for moonlight, or the faintest daylight, enamel-fronted sights, made to slip over the foresight, are very effective. A few words of caution. Avoid a head-shot at a lion if possible, unless, when he is looking at you, you can catch him half-way between the nose and the eyes ; otherwise the bullet will surely glance. Behind the shoulder, aiming for lungs or heart, is the very best shot for a lion, and if moving across in front of you, always

¹ We never found the lioness I first hit, though I am confident she lay dead not far off.

wait, if possible, till the beast has passed you, for if you fire as he advances, and fail to drop him, his first rush is likely to be in your direction.

F. VAUGHAN KIRBY.

IN BRITISH EAST AFRICA

Simba OF SWAHILIS ; *Lugwaru* OF NDOROBO ; *Lendja* OF GALLAS ; *Libbah*
OF SOMALIS

Very little has been written up to the present about the lion of East Equatorial Africa as compared with his South African and Somaliland brothers, and I regret very much that some one better qualified than myself to write this notice of our East African lion has not been found to undertake the task. The reason for this deficiency is not, by any means, that the animal itself is scarcer, or less imposing either as to size, appearance, or ferocity, but rather that this region has been much less travelled, and that the lion has not here been made the special object of pursuit, as in other parts, by the few who have visited the country for the purpose of sport. On the contrary, wherever game is plentiful there lions are sure to be common, and in some localities they are very numerous ; whilst in size and magnificence of mane they are, in some instances, unsurpassed, and are certainly not less aggressive than elsewhere.

Lions are present everywhere, from the coast right through the whole country, wherever there is plenty of prey (especially zebra) and water—conditions which are invariably coincidental. Their habits being chiefly nocturnal and their days passed, for the most part, lying low in some quiet spot, they are not often seen by the traveller or hunter who does not adopt special means to find or to attract them. He may often enjoy, in the still African night, a thrillingly magnificent chorus, as a party—the old male leading, in deliberate time, with hoarsely resounding roar, the rest chiming in with lagging but harmonious voices (as of a congregation echoing the

priest's words), swelling into an awe-inspiring volume of sound, and anon dying away into a few final coughing grunts—grandly serenades his desert camp at intervals, first approaching, then receding; the weird but not untuneful howl of a melancholy hyæna, in sad sympathy with the wild and lonesome surroundings, contrasting mournfully during their pauses. But unless when, in the early morning, the drifting eddies of silent vultures, besprinkling one quarter of the clear sky as they lazily glide in whirling thousands above the trees, suggest a carouse prolonged into daylight and the remains of a feast still guarded, he may wonder where these noisy midnight prowlers vanish to during daytime.

Lions have frequently invaded the island of Mombasa itself (probably crossing at low spring-tides when the channel is fordable at one point), and attacked the cattle kept there for slaughter, and several have been killed there at different times. The last instance occurred, I am informed, quite recently, when a lioness was shot by a native with a bow and arrow, and its body was afterwards dragged through the town. In the interior they are sometimes seen in large troops in their favourite resorts. Mr. F. J. Jackson (to whom, as in many other cases, I am under an obligation for interesting notes) once came across twenty-three together near Machakos. I myself have seen a party of about fifteen in the country north-east of Mount Kenia.

Many of those met with are maneless, or have but insignificant manes, but there are also very fine specimens to be found. Whether local conditions—such as elevation and climate, as some assert—have anything to do with this difference, or whether it is merely a question of individual idiosyncrasy, as is the case with beards among men, I have not been able to arrive at any definite opinion. However this may be, it seems that maneless lions are commonly small, the full-maned specimens being much finer animals.

I have already expressed my conviction that our lion is no less bold

than any other representative of the species. I may add that man-eating lions seem to be commoner and more troublesome than in any other part of Africa, and rival in their destructiveness the man-eating tigers of India. The reason of this is, I think, not difficult to explain. In South Africa, as soon as a lion takes to preying even on the cattle of the natives, let alone themselves, the whole male population of the neighbourhood turn out and hunt him down and kill him. Zulus, Swazis and kindred tribes



FIG. 53.—Head of Lioness. Shot on Jerato Pass, North Somaliland.
Photographed by Lord Delamere.

were accustomed to do this with their spears only before firearms came into their hands at all. Consequently the predatory habit, when turned in this direction, was nipped in the bud. But many of the tribes of Central Africa are either a more timid people, or, being few and scattered, lack the cohesion necessary to carry out such a stamping-out policy. Hence your man-eater, having once acquired the taste and overcome his natural awe of human beings, perseveres in his evil course, getting bolder and bolder, and becomes the terror of the country-side; and it is possible

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even that a race of man-eaters may be developed, for I have known of a particular locality being reputed dangerous from that cause for more than a generation.

On some parts of the Uganda road straggling porters have for long been preyed upon; the loss of life from this cause among the Indian coolies employed as navvies on the railway has been so serious that at one point, not far from the Tsavo River, where between twenty and thirty of them had fallen victims to two man-eaters, the work was considerably retarded by the labourers refusing to remain there while their comrades were being carried off night after night in this way, until at last one of the engineers (Mr. J. H. Patterson) succeeded, after much trouble and a narrow escape himself, in shooting both. At another point an engineer was killed by a lion he had attempted to shoot.

Lions have also been known to enter dwellings, and at least one European has been taken out of his tent and killed. One of my own gun-bearers had lost a brother by a lion, which had forced its way into his hut near the coast, where his home was, and carried him off—a by no means solitary instance.

I am convinced that any one going to the Protectorates for the purpose of shooting lions would have great success if he went about it in the right way. A good many have been shot already by different travellers or sportsmen while passing through the country, and I know of one case where a Hungarian nobleman (Count D'Harnoncourt) killed six lions out of a group that he encountered at one spot in little more than as many minutes—some of them very handsome skins.

A. H. NEUMANN.

IN TUNISIA

Down to the time of the French invasion of Tunis, in 1881, lions were still found in the extreme north-western part of the Regency, close to the

Algerian frontier. In 1880 the present writer accompanied a joint military expedition of French and Tunisian troops which was to explore and pacify the forest-covered mountains on the frontier between Algeria and Tunis. A prominent personage in this expedition was M. (afterwards General) Joseph Allégro, a Tunisian subject of French descent, who at that time represented Tunis as Tunisian Consul at Bone. (He is now Governor of Gabes.) General Allégro was partly of Arab blood, and had great influence amongst the natives. He was passionately fond of sport, and thus got up several hunts, which revealed to the present writer the then interesting character of the Tunisian big game. In one day's shooting, with the aid of numerous Arab beaters, we obtained one lioness, one leopard, six wild boars, two mountain gazelles, a hyæna, a Barbary stag, and a variety of smaller creatures. The punitive reprisals against certain wild frontier tribes had resulted in the accumulation of about 250 raided cattle in the French camp, and these were attacked one night by lions. One of the carcases that was carried off was poisoned with strychnine. A few days afterwards a fine full-grown lion was found lying dead in the forest, evidently poisoned. This lion had an unusually fine mane for a wild one. The colour of the body was a rich dark tawny, as (though in a lesser degree) was that of the lioness killed a few days previously.

General Allégro had in his possession several skins of lions killed on the Tunisian frontier, and they all exhibited more or less this dark tint. It is doubtful whether the lion is not quite extinct in Tunisia at the present day. The leopard still lingers in the forests, and of course it is just possible that a lion may still exist here and there in the extreme north-west. What has brought about the extinction of this animal is less the persistent attacks of French or Arab sportsmen than the opening up of the forests and the settling down of the people since the French occupation. The herds are now so carefully tended that the lion has little or no chance of feeding on them, while the Barbary stag and the gazelles have in that

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region become very scarce. Two hundred years ago the lion was found quite commonly in Tunisia. About the same time, so far as records go, the last lion was killed in the adjoining Pashalik of Tripoli, where the animal now seems to be entirely extinct. Lions still linger here and there in South-East and South-West Algeria ; possibly also in Morocco.

H. H. JOHNSTON.

IN ALGERIA

Sbâ AND *Asad* OF ARABS

The North African lion was in bygone ages undoubtedly very numerous. I do not mean in remotest antiquity, or the times quite so far distant as those, when lions attacked Xerxes and his camels in Greece. There is, however, little doubt that the Romans drew their chief supply of lions for the arena and gladiatorial combats from Mauritania and Numidia. Pliny says, according to Holland's quaint translation (Holland's *Pliny*, 1601), "Q. Scævola, son of Publius, was the first that in his Curate Ædileship exhibited a fight and combat of many lions together," and that "L Sylla when Pretor represented a shew of an hundred Lions with manes and collars of haire," and that "Pompeius the Great shewed 600 of them fighting in the Grand Cirque, whereof 315 were male Lions with manes," also that "Cæsar Dictatour brought 400 of them into the shew place." Pliny is more correct in describing the habits of lions than Herodotus, who, amongst other remarkable facts, alleges that a lioness only once in her life brings forth and then only one cub, as the first cub in entering the world tears the inside of his mother to pieces with his claws! Some of Pliny's remarks are to the point, and modern lion-hunters can corroborate his assertion that "if he chauce to be wounded hee hath a marveilous eye to marke the partie that did it and be the hunters never so many in number upon him he runneth onely." The lion that walks about in the sandy or

open desert of the Sahara never has existed except on the canvas of Royal Academicians and other artists. In Algeria, as elsewhere, he lives where there is forest and bush or other cover, such as high grass. He frequents the neighbourhood of man and his flocks and herds whenever possible, and nothing but the impossibility of getting food in any other way will banish him to uninhabited regions, and induce him to earn his living by the chase of wild animals.

The Algerian lion has become so rare that it may be said to be nearing extinction. Contrary to the general fate of the larger game (unless we except the red deer of Northern Africa), it lingers only in the country that might almost be described as the Mediterranean littoral zone, though an occasional lion is still shot or tracked in the interior, as far inland as the district of Soukarras, and certain places in the Aures. In 1892-93 one or two were killed within a day or so of Batna, but during the time I was in the country (1892-95), I may say I hunted almost the whole Aures range from the Melliti into Tunisia and never saw a track, and I do not remember hearing of more than three or four being obtained in the whole province of Constantine. In the provinces of Algiers and Oran they may be said to be extinct. So long ago as 1862 Général Marguerite wrote that he had spent eleven years in the best lion-countries in the province of Algiers, and then the average number killed did not exceed three or four a year. In those days they were found in the wooded belt of hills between the Ouarsenis on the west, the Pic de Taza on the east, the Djebel Ennedate on the south, and the plain of the Chélif on the north ; and it was estimated that only two-thirds of the lions obtained were natives, and the remainder lions coming from Dir-Gueyoul, Djebel-Dira and Zakkar, or what the Arabs term "Berranis," *i.e.* strangers or wandering lions. That the majority of the native population do not mourn the absence of the king of beasts may be gathered from a simple fact Général Marguerite relates, that during his eleven years the Beni-Mahrez, a tribe not numbering more than

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100 tents, lost on average annually, 3 horses, 25 cattle, and 75 sheep from the depredations of lions and panthers, or equal to a tax of 5000 francs a year ! Gérard, whose lion-hunting exploits charmed the youthful days of many a head now gray, calculated that each lion, on an average, levied, during a life of thirty-five years, taxes amounting to £8400 on the population. It was no wonder that the French Government gave a capitation fee for his destruction. But before the French came, the Turks had encouraged the Arabs to destroy them by freeing the two great lion-hunting tribes, the Ouled Meloul and Ouled Cessi, from all taxes and paying liberally for their skins. The French gave only 50 francs for a skin.

Between 1873 and 1883 the process of extinction is measured in the Government returns. The numbers killed for the whole of Algeria were, in the last six years of this period, 1878, 28 ; 1879, 22 ; 1880, 16 ; 1881, 6 ; 1882, 4 ; 1883, 3 ; (1884, 1) ; and for the decade—

Province of Algeria	.	.	.	29
„ „ Constantine	.	.	.	173
„ „ Oran	.	.	.	0

202

There are a few lions still left in the Province de Constantine, in the thick forests between Soukarras and La Calle. They are rarely seen, and a hunter might spend a month before coming on a fresh track. The Algerian lion seems to have been justly accredited in old days with greater courage and audacity than others, but now he keeps clear of man and flies from an unarmed native. It is now a very rare occurrence for a lion to attack the flocks and herds of the Arabs, and he never springs into the douar as he did of old ; he lives by hunting. The wild boar and red deer are the chief contributors to the support of the king of beasts. Gérard, the "Tueur des Lions," killed thirty lions between 1848 and 1856 ; his accounts of their doings appear almost incredible, even in a country abounding in

Arab camps and covered with flocks. He mentions one lion which killed, in the course of time, one after another, the whole population of an Arab douar, forty persons in all ! There were two ways in which the ordinary Arabs killed lions—the ditch (zoubia) and the ambush (melbeda). The zoubia is dug deep (about 10 feet), and 4 yards wide, and narrower at the surface than at the base. The site was usually the midst of the camp (douar), which was surrounded by a zereba. The live stock were so placed that the lion, jumping over the zereba to reach them, landed in the ditch, where he met with an ignominious death amidst the insults of the men and the “lu lu lu” of the women. The melbeda corresponds to what East African sportsmen know as a “lion zereba” for night-shooting, and is simply a hole dug in the ground with a surrounding screen and protection, and a dead or live bait placed close to it. When Arabs hunted the lion by day, it was by posting a number of guns and driving the woods and hills.

The Arabs have many names for the lion. Sbâ, (سبأ) Saïd, Hoûche, Metalouf are perhaps the commonest, though I believe that wealthy language boasts 696 other names for him ! We find amongst the natives, and also in books, the repetition of that delusion which existed in South Africa, and perhaps still exists amongst the Dutch, viz. that there are distinct varieties, distinguished from each other by colour, size, and other attributes. The Arabs consider there are three distinct kinds : *el adrea*, the black lion, with black mane and dark body, smaller but more dangerous and stronger than the other kinds ; *el asfar*, the yellow lion ; *el zarzouri*, the gray lion. There is no foundation for this superstition, as a black and a yellow cub have been found in the same litter.

The Algerian lions often had magnificent manes, but there is no evidence that they are of greater average size than other African lions. An average adult lion will measure about 8 feet 3 inches from the tip of his nose to the tip of his tail before being skinned, and stands about 3 feet 1½ inches at the shoulder. It would seem from such evidence as is obtainable that

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they often reached enormous weights. It is alleged that lions weighing 630 lbs. have been killed, and that 600 lbs. is not unusual. The Algerian lion was usually extremely fat, living on as much mutton as he could eat. The lions in Algeria generally couple in January ; the litter consists of one, two, or three cubs, more usually two. The cubs are said often to die during teething, after they are three months old. The cub-marking, except the dorsal stripe, disappears at about ten months. The mane of the lions begins to grow at three years of age, and is complete at about six years.

A. E. PEASE.

THE LEOPARD (*Felis pardus*)

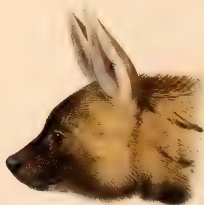
Tiger OF SOUTH AFRICAN COLONISTS ; *Tijger* OF THE BOERS ; *Ingwe* OF ZULUS, SWAZIS, MATABELE, AND MATONGA ; *Inkwe* OF THE BECHUANAS AND BASUTO ; *Siveri* OF THE ALOMWE (MOZAMBIQUE PROVINCE) ; *Nyalugwi* OF THE MANGANJA AND LOWER ZAMBESI NATIVES.

Only one species of leopard is found throughout Africa,¹ though individuals vary much in size, coloration, and to a less degree in habits. The ground-colour of the fur is usually pale rufous buff, sometimes with a deep orange tinge ; it is paler on the flanks, and the throat, chest, inner sides of limbs, and long under fur are white. The spots vary in size and number ; those of the upper parts of the body take the form of incomplete rosettes (quatrefoil and trefoil) encircling a bright central area of richer colour than the ground fur. Elsewhere they are of simple form, small and numerous on head, neck, and lower limbs, large and scattered on chest, flanks, and under parts. Ears black at the base, buff-tipped. Towards the end of the tail the spots form more or less complete rings, the tip being always black. Leopard cubs are pale grayish fawn, with longer and more woolly

¹ Leopards are still found in most parts of Cape Colony and are occasionally killed among the mountains, within thirty or forty miles of Cape Town.—Ed.

PLATE XV

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|------------------------------|--------------------------|
| 1. Leopard Head. | 5. Spotted Hyæna Head. |
| 2. Jungle Cat Head. | 6. Striped Hyæna Head. |
| 3. Caracal Head. | 7. Aard-wolf Head. |
| 4. Cheeta Head. | 8. Abyssinian Wolf Head. |
| 9. African Hunting-Dog Head. | |



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fur and ill-defined markings. In November 1888 I shot a leopard more nearly approaching a melanoid than any I have yet seen from Africa. The fur was dark Vandyke-brown, with a surprisingly rich orange gloss, spots either black or sepia-brown, but barely distinguishable in some places; ears without the usual buff tips. Two leopards exhibiting strong traces of melanism have been killed in the Cape Colony, one near Albany, the other near Grahamstown. The typical hill and low-country leopards present the extremes of variation, the gradual transition from one to the other being displayed in the more numerous intermediate forms. The former, inhabiting mountain ranges, foot-hills, and dark wooded kloofs, averages 6 feet 5 inches in total length, of which the tail is about 2 feet 10 inches, shoulder height 2 feet 5 inches, girth behind shoulders 2 feet 8 inches, girth of forearm 11 inches. The fur is dark and rich in colour, and the spots on the back, between neck and root of tail, more or less confluent, forming broken bars. The low-country leopard is a long gaunt brute averaging 6 feet 10 inches in length, tail 2 feet 6 or 7 inches, head round and heavy, limbs long, shoulder height 2 feet 7 inches, girth 2 feet 4 inches, fore-arm 10 inches. Fur short and sleek, pale fawn, spots distinct and widely separated. I have shot some fine beasts amongst the many I have encountered. The following are dimensions of two of my best :—

Length from tip to tip in a straight line.	Length over all, "Sportsman's" measurement."	Shoulder height.	Girth of neck.	Girth behind shoulder.	Girth of forearm.	Length of skull.	Zygomatic width (of skull).	Weight of skull, cleaned.
6 ft. 11 in.	7 ft. 7 in.	2 ft. 7 in.	22 in.	35½ in.	12½ in.	9½ in.	6½ in.	1 lb. 8 oz.
6 " 9 "	7 " 2 "	2 " 7 "	20 "	33½ "	11¼ "	9 "	5½ "	...

Leopards are distributed throughout the greater part of Africa wherever the country is suitable to their habits—rough hill country intersected by deep kloofs, grass plains and thin forest, and thickly matted jungle or river-banks; in all such places, if there is sufficient small game

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to provide them with food, leopards may be found. They are perhaps more strictly nocturnal in their habits than lions, seldom leaving their lairs before it is quite dark, and returning before dawn. Occasionally, however, they may be seen sunning themselves high up on a rocky *kopje* or on some mountain spur, and at such times I have seen them playing together in a charming manner. Their lairs are often made at a considerable distance from water, but, as they do not seem to evince partiality for any particular surroundings, they turn up at times and in places where least expected; and when disturbed, they creep away so stealthily that it is difficult to obtain a shot at them. They are far more silent than lions, particularly the hill leopard; occasionally they utter low moaning grunts, but their ordinary cry, repeated three or four times in the same key, is extremely harsh. I have heard bushbuck, when they wind or hear a leopard at night, utter loud warning barks, the signal being instantly caught up and passed on rapidly from one to another throughout the whole length of a kloof. Leopards, although, like lions, quite content to eat carrion sometimes, have undoubtedly a greater craving for warm blood. In the hill country bushbuck, duiker, monkeys, dassies, etc., are their principal prey, but in the low country larger animals are overpowered. A male baboon, bush-pig boar, and a bushbuck ram will occasionally make a good fight before they succumb.¹ Leopards cover great distances at night when in search of prey. When quartered near native villages they exact a heavy toll of calves, goats, and dogs; and amongst a flock of sheep or goats will strike down their victims right and left, as if impelled by sheer love of slaughter. They display great cunning and boldness in abstracting dogs—to the flesh of which they are very partial—from a village or camp. I have not, however, yet met with a single true man-eating leopard in Africa. Their mode of attack is very similar to that of a lion. Either they lie in wait in the jungle on a river-bank and seize their victims as they

¹ See *In Haunts of Wild Game*.

come to drink ; or they fairly stalk them, up wind, advancing in the stealthiest manner, and noiselessly threading their way through the densest and most intricate jungle. The final rush is made with lightning-like rapidity and in silence ; the throat is usually seized and the jugular vein severed, but the death-wounds are often given in the back of the head and neck. Sometimes the neck is broken ; however, careful observation has convinced me that this is not done—as by a lion—intentionally, but that the animal, standing on uneven ground when attacked, has rushed forward, and the weight of the leopard on its neck has brought it down on its head, and caused dislocation. For whereas a lion achieves this result by dragging the head of its prey downwards, seizing it by the nose with one paw, I have never yet known this to be done by a leopard, though the latter frequently tears its victim across the eyes. If two leopards attack, the neck and shoulders are seized ; I cannot recollect an instance of these animals seizing the flanks. After killing, leopards drag their prey, if possible, to the nearest thicket, and, opening it at the flank, disembowel it as neatly as a lion would do, and partially bury or cover over the entrails. Having eaten the viscera, however, they attack, not the buttocks, but the breast bone, eating all the meat, soft bones, and cartilage ; the ears and nose are often bitten off, and the tongue torn out. Leopards seldom dismember large portions, as lions will do, in order to carry them off and devour them leisurely under a bush or tree ; they set to at the carcase, and eat it where it lies. Should they suspect that it has been interfered with, they seldom return to it, though they may drag it up into a tree, for they are agile climbers, and the weights they thus manipulate testify to their great strength. I have seen carcases weighing from 80 lbs. to 150 lbs. thus dragged up and placed in the fork of a branch 12 to 15 feet from the ground. When returning to a kill, a leopard, unlike a lion, always examines the branches of the surrounding trees, and if at all suspicious makes a circle round the spot before advancing to the carcase ; and if it has reason to suspect interference will

at once retire. They take to water readily, and are expert swimmers. They never carry a carcase, but seize it by the neck and drag it exactly as a lion does. Leopard cubs are born between October and December, usually two or three in a litter. I have, however, seen four on several occasions. It is quite possible, I think, that some leopardesses will produce two litters in three years, so they are fairly prolific animals.

I have always maintained that scant justice has been done to the leopard as an object of sport. He is certainly of retiring habits, but the sportsman's perseverance and skill in forest-craft should overcome this obstacle, and then, when it comes to fighting, there is no more savage, fearless, determined animal in Africa. The exercise of prompt judgment and cool, steady nerve alone will enable the sportsman to avoid an ugly mauling, or worse. I nearly lost my life in a night encounter with a wounded one, so have reason to respect them; but, apart from that, on account of their unequalled cunning, and indomitable pluck when brought to bay, they deserve a foremost place amongst the most coveted objects of a sportsman's desires. There are several ways in which leopards may be hunted with more or less success, one of these being to attack them at a carcase at early dawn, as described in my lion article. Usually, however, it will be found that they leave their kill at an earlier hour than lions would do, though this depends upon whether the country is much or little hunted over. Watching from a *scherm* by moonlight is another plan, but in this case I cannot too strenuously urge the greatest caution, and absolute silence, for their advance is so stealthy that the slightest indiscreet movement will be seen by them. If a leopard gets near to the sportsman, and suddenly sees him, believing itself unseen, it instantly retires as stealthily as it came, but, if startled by a sudden movement, bounds away with quick, hoarse grunts. If the bait can be placed on the sand of a river-bed, and the *scherm* built between it and the water, there is no risk of the leopard circling round it as they so often do, and its advances over the white sand are clearly seen.

On one occasion, where the bank was about 12 yards from the water, a leopard came to my bait at 11 P.M., ate for about three hours, then jumped down the bank and walked directly towards me, probably with the intention of drinking at the river, but fell to my shot almost at the muzzle of the rifle. When placing a bait on the ground it should never be tied fast, for when the leopard proceeds to drag it and feels the resistance he instantly becomes suspicious, and usually retires; the best plan, especially in jungle country, is to fasten it to a log of wood, as the drag is then easy to follow in the morning. Under certain circumstances it is admirable to place the bait in a tree; it should then be tied fast, as the shot will be obtained when the beast rears up and drags at it, the resistance in this case causing no alarm. Near to native villages, where leopards frequently abound, a live goat is a temptation few can resist; it should be tethered well away from any cover, the sportsman reserving his fire till the animal is seized, and the leopard drinking its blood. Always remember to aim low, with a well-raised foresight. Every precaution must be taken when constructing a *scherm*. No trees should be felled near the bait, all branches that are required being cut 100 yards away. I have often used blue-lights successfully for night-shooting—leopards appear to dislike a light less than a lion does. They will often unhesitatingly approach a bait on which a strong lamp-light is shining from above. A wounded leopard or a leopardess with cubs is a really dangerous beast. When approaching the former in thick cover, every tuft of grass, every scrubby bush must be carefully examined before an advance—a few paces at a time—is made. They are not so likely to give notice of their whereabouts by growling, as a lion does, but await the hunter's approach in silence, then fly out at him—usually, but not always, uttering coughing grunts—with implacable fury, and with such rapidity that if the rifle is not smartly used the sportsman may expect a mauling.

In the course of considerable experience of these plucky animals, I have known several instances of entirely unprovoked attacks made by

them upon myself or others, two of which I will relate. A few years ago (I think in 1891) my friends Messrs. Fred and Harry Barber were stooping down, examining the carcase of a waterbuck which lay under a large tree, when a leopard suddenly dropped from the branches, and fastened on the neck of one sportsman. His brother, however, seized his rifle and shot the brute dead, in such a prompt manner that a few flesh wounds only were received by its would-be victim. In the other instance I had been helping my boys to chop out some elephants' tusks, and afterwards walked to a small stream 50 yards away to wash my hands. Kneeling down, with my head bent over the water, I heard a rush and a snarling growl, and saw a leopard coming for me down the steep bank opposite, its long tail sweeping round in a most excited manner. The moment I looked up the brute halted, then retreated, growling, up the bank. I ran back for my rifle, and, accompanied by the boys, hurried after him. About 80 yards from the top of the bank was a dense patch of low scrub, and, walking towards it, we passed close to a little mound with a low bush growing on the top of it. I was about 10 yards from this, and nearly abreast of it, when I saw something move behind it; it had vanished when I stopped, and I was edging away to the right in order to see better, when, with a furious rush, the leopard—for such it was—came out at us. I stopped him in mid-career, however, and, as the shot was fired, a leopardess with a cub ran out from the scrub beyond, but I missed her, and she eventually got clear off.

I know of no better rifle than a .461 Metford, carrying the 90/360 charge, for leopard shooting; but they are thin-skinned beasts, and any good modified Express, if held straight, will drop the biggest leopard ever cubbed. My remarks upon sights for night-shooting at lions apply equally to leopards. Expanding bullets with good substantial butts are necessary, as, if solid projectiles are used, there is often no blood-spoor, owing to the hide of the leopard fitting so loosely that the hole in the body and the one in the skin do not coincide, so that the bleeding is internal. F. VAUGHAN KIRBY.

IN SOMALILAND

SOMALI NAME, *Shabel*

Nearly all the animals killed under this name in Somaliland would be described as leopards in India, not panthers. The dividing line is vaguely defined by naturalists, but the fact remains that there is seldom anything so large as the heavy animals shot in India under the name of panther. The leopard skins of Somaliland are of exquisite softness of coat, the height of the Somali plateaux, often from 5000 to 6000 feet, accounting perhaps for their great beauty. The best leopard skins of all, in which the spots are so large and closely planted as to give the centre of the back almost a black appearance, are obtained from the highlands of Abyssinia, the main system from which spring the plateaux of Somaliland. These very handsome dark leopard skins are used in thousands by the Abyssinian soldiers as ornamental cloaks for the shoulders.

There is a very large animal inhabiting the hills, about which many superstitions are current; this would be described in India as a panther, and, allowing for native exaggeration, it is probably the same size. Some very large Somali panther skins may sometimes be seen exposed for sale in Aden.

But the animal usually met with by the sportsman is the leopard, and this is distributed very widely, occurring everywhere except in the great treeless plains of short grass, where they probably do not exist. They are found in the open jungle fringing these plains, and in the level thorn forests of the Haud. They are most numerous, however, in the Golis and other ranges, or any rough hilly ground, where they are the terror of the shepherds. They spring into kraals at night without the slightest fear, and nine-tenths of the losses among sheep and goats are their doing.

By day, in the hilly country, the peculiarly deep saw-like call of the

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leopard can be heard from some cave far up on the mountains, the sound carrying to a great distance.

The sportsman who stays long in Somaliland will assuredly have some very interesting adventures with the leopards which spring into camp from time to time, and for this reason it is advisable to keep a loaded rifle in the tent ; since although the animal, after seizing a goat, will generally spring off with it and get clear away, occasions may arise when the rifle could be used with effect.

The attacks have been made in a variety of ways. In one instance the leopard sprang into camp from the branches of a large tree overhanging the spot where the goat was tethered ; on other occasions the assault has been made from the bed of a small ravine running up to within a short distance. The impudence of this animal's attack is carried further still, and goats have been killed when tethered within a circle of sleeping men close to a camp fire ; or, when the goat has been tethered near the tent, the outer fly has been used by the leopard to shelter its advance. A dog would be equally liable to its attack.

Leopards, when only wounded, if they can see their enemy, nearly always charge, and do so in the most direct manner. They lie close, and the small mark they present and the suddenness of their attack make it difficult to stop them except with a charge of slugs. Leopards are so stealthy that they are seldom seen by day, and if seen they disappear almost at once, their light step leaving nothing by which to follow.

The best way to set about looking for these animals is to visit the tribes settled at the foot of the mountains, and, having found a kraal, the neighbourhood of which has been subject to their thefts, to build a shelter and tie up a goat, preferably a half-grown bleating one. The leopard will come down just before sunset, at the hour when the flocks are usually driven down from the hills where they have been grazing, to be shut up in the kraals for the night. When the leopard first rushes at the goat is not the time to fire.

It is best to wait till he is lying quietly on the victim drinking its blood, offering a steady, certain shot. A fatal blow in the first instance is important, as a bad shot may bring on a charge. Another way is to find out a cave where a leopard lies up in the heat of the day and to tie up a goat, about three o'clock in the afternoon or at sunset, some distance below the cave. The best hours to watch would be from three to about four, and again at the sunset hour ; for, if the leopard has killed the goat between those hours, the trail may be followed, or he will return to the carcase, if left in the place where it was killed, at sunset.

Leopards go to drink in the hot weather at dusk, and the hotter the day has been, the earlier will they come to water ; the best time, therefore, to watch a pool is the sunset hour, say from 5.30 to 6.30 P.M., or until it is too dark to see. A long strip of white paper should be pasted down the centre rib of the rifle, or other night-sights arranged. Another plan is to sit at night in a strongly constructed thorn zereba with a loop-hole in it, and this shelter should be roofed over with a close and compact interlacing of thorn branches. A live goat may be tied a yard or two away up wind in front of the loop-hole ; or, better still, the shelter may be made down wind of the carcase of a sheep or goat which has been struck down during the day. A carcase so found should be touched as little as possible.

There is yet another way of hunting leopards which affords good sport to an active man. This is to find the cave where a leopard lies up at noon, either by following the trail of a carcase dragged away the night before, or from native information, and then to sit and watch from the rocks above the cave, posting sentries on prominent points so as to command all the slopes. When the leopard comes out, which he may do at about 3 o'clock, a shot may be obtained at once, or an active man, by running about, and springing from rock to rock, guided by the shouts and signs of the sentries, may succeed in bagging his game.

On this kind of hill, generally composed of huge boulders, the going is

safest in dry weather, and then the best foot-gear is the rubber tennis-shoe, or the Kashmir-grass shoe. Shoes with cotton-rope soles are also good. Boots make a clatter and slip.

The Somali hunters (Midgans) shoot the leopard with poisoned arrows, or catch it by setting a noose and tying up a bait, and then mobbing the animal with spears. In the latter case the skins are generally badly spoilt. Leopards will sometimes follow a caravan in broad daylight, in order to pick up a stragglng goat; and if the marauder has been seen following in this way, it may be worth while to drop behind and tie up a goat, and watch in ambush for half an hour, allowing the camels to proceed. Leopards follow wounded game by daylight in like manner, and the writer has found a Waller's gazelle which he had wounded, lying dead, struck down by a leopard. The carcase was watched for a short time, and the leopard returned and was shot. In this case he had actually been driven off the kill by one of the shikaris coming up.

A remarkable instance of leopards interfering with game already bagged occurred to the writer on the occasion of an elephant being killed. The hunting party visited the dead elephant next morning to cut out the tusks, when a leopard was seen lying asleep under the shelter of the carcase. It had evidently come there for the blood. The incident was so unexpected that no one was prepared to fire, and the animal escaped. In 1889 there was a leopard, said to be a panther, which had haunted the Mirso ledge of the Golis range for some years, and was supposed to have killed over a hundred people. It was in the habit of lying in wait at a corner of a very dark, rough jungle path, where huge rocks overlooked the track; and the Somalis used to show a boulder, some 6 feet high, a yard from the path, in the flat top of which was a depression shaped like a panther's body, from which the beast was said to spring upon travellers.

If a leopard could be marked down in the level grass country, dotted with isolated bushes, which fringes the open prairies, good sport might be got

by riding him down and spearing him, as all cats become easily blown when chased on horseback in the open. A few Somali horsemen should accompany the sportsman to back him up with their spears should he get into trouble. When a lion or leopard is caught on this ground by the natives, they chase him to the shelter of one of these isolated bushes, and then surround him and shoot him with the Midgan arrows.

H. G. C. SWAYNE.

IN WEST AFRICA

In West Africa this animal is sometimes called the panther. The average measurement of the head and body is about 3 feet 10 inches long ; the tail only slightly shorter. An adult skull measures $9\frac{1}{2}$ inches in length, and $5\frac{5}{8}$ inches in width.¹

The leopard is very variable both in size and colour, and several subspecies have from time to time been based upon such characteristics.

It is usually of a yellowish-fawn colour, with darker spots grouped into rosettes over the whole of the body, except underneath, where the tint is whitish. The cheeks are without long hair and the tail is ringed.

There is a form known as the black leopard, which is nothing else than an example of melanism ; the pelage is a rich brown-black and the spots are very evident in certain lights.²

Jentink says that he never met with it in the open, but often saw very large skins. It is found over the whole districts of Liberia where he collected, though nowhere plentiful. At night-time the beast boldly breaks into goat-pens, even in villages and inhabited places, and

¹ A West African leopard, shot recently by Captain A. W. Baker, of the 2nd West African Frontier Force, at Jebba, on the Niger, measured in extreme length, from nose to tip of tail, 6 feet 2 inches, and from foot to top of shoulder, 2 feet $1\frac{1}{2}$ inch. These measurements have been kindly forwarded by Captain Baker.—Ed.

² In the Grahamstown Museum, Cape Colony, there is a fine example of the black leopard. Melanism in these animals is, however, not so common in Africa as in the East.—Ed.

steals his prey. During the daytime he sleeps in unfrequented thickets. Negro chiefs pay 15 dollars for the skull in order to get the canine teeth, which they have set in silver and wear either as necklace or bracelet. Before my arrival at Robertsport Mission the goat-pen was attacked by leopards; one goat was mangled on the spot, and another was taken away and found the next morning by young men from the mission. Young leopards are often caught and taken to the coast for sale. There was an amusing instance of a scare in one of the West African steamers, whilst it was unloading at Liverpool; for I may mention in passing that these ships come home stocked like menageries every voyage. The gang of wharfingers were busy in the hold clearing away the cargo, when from right aft came a curious rasping, grinding, tearing sound. Every man stopped to listen, when from the background came a voice, "There's that leopard that escaped during the voyage," and in a moment the hatches were dark with flying forms. After much consultation, torches, lamps, shot guns, and rifles were fetched, and a body of intrepid shikaries descended to battle with this dangerous beast. Alas, after an exhaustive search they discovered nothing more than a hungry porcupine, and retired crestfallen!

In another part of Africa—Nyasaland—I have seen an instance where a reedbuck ram (*Cervicapra arundinum*) was attacked by one of these animals, but generally I think they prefer the smaller buck. On Mount Zomba they certainly preyed upon the bushbuck (*Tragelaphus scriptus roualeyni*), as their remains testified in the bush. Wherever you shoot, it is (unless you have dogs) almost certain you will never see a leopard to get a shot at it. At night, when the camp fires throw flickering, furtive shadows on the neighbouring acacias, you hear its weird cry. By day you find by its spoor that it has thoroughly explored your camping ground, and if you have goats, fowls, or especially a favourite terrier, look well to them if this marauder is in the neighbourhood. A wounded leopard is a terrible

antagonist, and many a fatal accident has happened from firing at this animal with a shot gun.¹

PERCY RENDALL.

THE SERVAL (*Felis serval*)²

Tijger-kat OF THE CAPE DUTCH ; *Tali* OF BECHUANAS

This very handsome cat is found all over Africa from north to south. It varies greatly in size and coloration in different localities. Typical specimens stand on an average from 18 to 20 inches in height. The general colouring varies from bright yellowish-buff to reddish-orange, lined or spotted with black or dark brown. The under parts are whitish-buff, black-spotted. The back is darker along the centre and marked with longitudinal lines, or stripes, while the shoulders have also one or two broadish diagonal stripes. The rest of the body is handsomely spotted with black or very dark brown, the tail being black-barred and fairly long ; throat white, chest rich yellowish buff, forehead lined black, cheeks spotted ; the outer portions of the ears, which are very long and upstanding, tipped and banded with black. In certain parts of Africa some specimens are striped instead of spotted on the upper parts of the sides. The skull is long and narrow. The serval stands high off the ground, and has, in the flesh, a somewhat leggy appearance. It is, none the less, a very handsome wild cat. The fur is long and beautifully soft, and the splendid skins of these animals are greatly sought after by native chiefs for the purpose of making cloaks and karosses. The serval is a bush-loving species, found usually not far from permanent water. It preys chiefly on feathered game, small mammals, such as mice and hares, and occasionally the young of small

¹ On the other hand a charge of buckshot is very effective at close quarters. In the year 1890, the late Mr. F. Lochner, while camped near the Zambesi with Mr. Broadwood, shot a leopard dead with a charge of No. 5 shot. The beast was prowling round the camp and actually came close up to the fire-light and clawed at a piece of meat hanging in a tree. Mr. Lochner saw it, snatched up a shot gun, and, firing at the leopard's throat, within a few feet, killed it dead on the spot.—ED.

² The Togo serval (*Felis togensis*), found in Togoland, the German settlement on the Guinea coast, is, apparently, merely a local variety.

antelopes. It is essentially nocturnal in its habits, and is, therefore, not often encountered by the sportsman. The natives usually take it by snaring, or by hunting with dogs.

The *Felis nigripes* (blackfooted cat), discovered by Burchell in his travels beyond the Orange River at the beginning of this century,¹ is, I am inclined to think, a sub-species of the serval. It was called by the Bachapins (modern Batlapins, South Bechuanaland) *Kakikaan*, and Burchell states that its skin was much sought after by these tribes-people for making karosses. This probably accounts for its present rarity. It is now a scarce cat. I procured a skin in 1890, at Morokweng, a Barolong native town in South Bechuanaland, just on the edge of the Kalahari desert. The skin, which is of a handsome ochreous-tawny colour, beautifully lined and spotted, has been identified by Mr. Oldfield Thomas as that of *F. nigripes*. It is in general colour very like the serval's, but smaller. This agrees with the account of Burchell, who describes this animal as not larger than the domestic cat. The hind-legs are, like the fore-legs, deeply barred with black. Burchell describes all the markings on the lower part of the body as extremely black, as well as the under parts of the feet, from which the animal gets its scientific name. The serval is a fierce, untamable cat, and even young animals which I have seen in captivity exhibited great hatred of mankind, spitting and swearing whenever one approached them.

H. A. BRYDEN.

THE RED TIGER-CAT (*Felis chrysothrix*)
AND THE GRAY TIGER-CAT (*F. celidogaster*)

This magnificent wild cat is found in West Africa, its habitat being at present chiefly known as Sierra Leone, Guinea, and the Gambia country. It varies a good deal in coloration, and, in Mr. D. G. Elliot's fine folio monograph of the cats, Wolf's very handsome coloured drawing depicts

¹ Burchell's *Travels*, vol. ii. p. 592.

three distinct varieties. The general colouring of the upper parts of the coat is rufous, faintly spotted with a darker red on the sides. The spots are smallish. The throat and breast are whitish, often edged with a rich golden colour and handsomely decorated at the sides with rich, tiger-like markings. The whitish under parts—sometimes also of a lovely golden tint—are spotted blackish-brown.

A somewhat lighter variety of this tiger cat has been called by Temminck *F. celidogaster*—the gray tiger cat. This is, apparently, only a local variation of the above species (*F. chrysothrix*), which shows wide differences of coloration in different localities of West Africa. Another form exhibits a splendid golden-red colour, thickly marked with chestnut.

This fine cat measures from 36 to 38 inches in length, from nose to tip of tail. It is a bush-loving species, shy, and nocturnal, and very little known to the European sportsman.

H. A. BRYDEN.

THE KAFFIR CAT (*Felis caffra*)

Wilde Kat OF THE CAPE DUTCH ; *Phagè* OF BECHUANAS

The Kaffir cat has a wide range throughout Africa in districts suitable to its wants and likings. In Pleistocene times, according to Mr. D. G. Elliot, a well-known authority on the *Felidæ*, it had a yet broader range and was found in France, Belgium and Britain. This cat is well known in South Africa, and, up country, is heartily hated by natives and settlers for its assaults on poultry, game birds, wild guinea-fowl, and other small game. Like others of the wild cat tribe, it varies a good deal in coloration, its coat ranging from dark gray or tabby colour to fulvous. The typical Kaffir cat may, however, be described as a rich darkish gray, striped with black or dark markings, which become broader and more defined on the quarters and legs. Fore-legs blotched and partially ringed. The nose and upper parts of the cheeks fulvous ; throat a rich creamy tint,

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handsomely banded with dark markings; the under parts palish fawn. The markings, like the colouring, vary a good deal in individual specimens as well as in different districts. The tail is rather long, and partially ringed with black or dark markings. The general appearance of this wild cat may, perhaps, best be described as a handsome gray tabby.

The body is strong and compact. The length of an average specimen, from nose to tip of tail, is about 40 to 42 inches, of which the tail measures some 15 inches. This wild cat has been referred to by various travellers under different designations. Bruce, in his Abyssinian journeys, speaks of the closely allied northern form described below as the booted lynx; and there has been much discussion among naturalists as to whether this is a distinct animal, or merely a local form of the present one. The skins of this cat make excellent karosses, and are much sought after by natives.

H. A. BRYDEN.

THE JUNGLE-CAT (*Felis chaus*)

Reed-cat OF BRITISH COLONISTS; *Riet-kat* OF CAPE DUTCH

The jungle-cat has a much wider distribution than the other small *Felidae* of Africa, and is found not only from South Africa to the north of the continent, but from the Caspian and Persia to India, and as far east as Burmah. It varies in colour from gray to yellowish with a tinge of rufous. The fur is short, fine, and soft. Typical specimens are pale gray in colour with an ochreous tinge, the under parts lighter; in some specimens the chest and belly are a golden rufous, faintly barred. The muzzle and throat are pale fulvous. The upper markings vary a good deal. In some, rufous lines or stripes are plainly apparent, crossing the body transversely; in others they are so faint as to be scarcely noticeable; while in others, again, they are completely absent. The limbs are sometimes found to be well marked on the outer and inner parts with very dark brown or blackish bars. The slender tail—about 10 inches in length—is marked with rings,

blotches, and a black tip. The total length of the body and tail is about 3 feet or a trifle less. The Egyptian form has recently been distinguished by Mr. de Winton as *F. chaus nilotica*.

This handsome cat is found in some places in moist marshy localities and the neighbourhood of reed-beds and dense covert ; in others in hilly and mountainous country up to an elevation of 6000 or 7000 feet. It is savage and untamable, a great foe to poultry, and has the reputation of being an expert catcher of fish. It has been known to carry off wounded feathered game from under the very nose of the gunner.

H. A. BRYDEN.

THE BOOTED CAT (*Felis maniculata*)

Procured by Rüppell in Nubia, and described by him as of a very dark gray colour. It is now generally believed to be the northern representative of the Kaffir cat (*F. caffra*), previously described.

H. A. BRYDEN.

THE CARACAL OR AFRICAN LYNX (*Felis caracal*)

Rooi-kat (RED CAT) OF THE CAPE DUTCH

The *rooi-kat* is much better known to native hunters, and especially to the Bechuanas, than to white sportsmen. The colonists, it is true, hating the attacks of these nocturnal marauders on the young animals of their flocks of sheep and goats, kill them as much as possible by poison and trapping. But the African lynx is so shy and nocturnal a beast that the white man seldom gets a fair chance at him with gun or rifle during daylight. The Bechuanas, however, hunt the animal persistently with dogs, clubs, and assegais for the sake of its handsome skin, which is greatly valued. They are also in the habit of setting snares for it, and so skilful are they, that even this intensely suspicious beast often falls a victim to their clever contrivances with branches and slip-nooses. The fur of the

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caracal is wonderfully thick, close, and soft, and the pelt has the reputation all over South Africa—I believe well deserved—of being an excellent preventive against rheumatism; many Boers and colonists sleep on a kaross of these skins. A cloak of caracal skins is worth at any time, even up country, as much as £5 : 5s. I have at the present time in my possession one of these karosses, for which I paid that sum to one of Khama's tribesmen in Bamangwato. Although consisting of sixteen skins, beautifully sewn together with fine sinew, taken from the backs of small antelopes, this kaross is wonderfully light. It is at the same time a most warm covering, and after seven or eight years' service is as good now as when I bought it. While collecting and matching these skins, the Bechuanas have a great objection to selling a single pelt. I have tempted a native, who had just snared a fine caracal and was carrying it to his kraal, with a good price in cash, but was unable to induce him to part with his capture. No doubt that particular *rooi-kat* matched the skins of others he had on hand, and was destined for a special place in some cloak or kaross.

The *rooi-kat* stands about 16 or 17 inches at the shoulder. Its coat varies in colour from bright rufous to a darker reddish-brown. The throat and under parts are paler, the belly being lightly marked with pale rufous spots. The ears are long, tapering, lynx-like, and tipped or tufted with black hair. The body is longish, lithe, yet strongly knit, and the animal is powerful, very active, and can use teeth and claws to great purpose at need. When wounded, it ought to be approached with care. It is a savage, untamable beast, and even the quite young animals are hopelessly intractable. It has great pace, and I have seen one of these beasts, surprised in daylight, show a clean pair of heels to a couple of men on ponies, and, after a short scurry, make good its escape in some bush or covert. The caracal prefers, apparently, a dry desert habitat and is common in Bechuana-land and along the edge of the Kalahari desert. Formerly it was abundant in Cape Colony, but has there been much reduced in numbers by the

vigorous attacks of farmers and flockmasters. It is found in North Africa, but is apparently unknown in the tropical regions of Central Africa.

H. A. BRYDEN.

THE HUNTING-LEOPARD

Genus CYNCELURUS

The hunting-leopard, or cheeta (*Cynælurus jubatus*), differs from the cats and lynxes by the imperfect retractibility of the claws, the extremities of which always protrude from their protecting sheaths. The body, too, is more slender, and the limbs are proportionately longer, in addition to which there are also certain slight points of difference connected with the skull and teeth. The African hunting-leopard seems to be only a local race of the Indian species, from which it differs by the somewhat woolly nature of its coat. It may be called *C. jubatus lanius*.

CHEETA OR AFRICAN HUNTING-LEOPARD (*Cynælurus jubatus lanius*)

Leopard OF THE BOERS ; *Ingulule* OF THE ZULUS ; *Ihlose* OF THE SWAZIS ;
Sigakaka OF THE BASUTO ; *Leñau* OF BECHUANAS

This beautiful creature, though one of the *Felidæ*, ranks as a separate genus, owing to several marked peculiarities in its construction. The body and limbs are long and slender ; claws blunt and only partially retractile ; tail long and bushy ; skull short, with much elevated crown ; upper flesh-tooth without the inside cusp of the true cats ; pupils of the eyes round ; ears small and rounded. The fur is coarse, long and woolly on the under parts, and forming a distinct mane round the neck ; for this reason the cheeta is probably the animal to which the term "leopard" (spotted lion) was first applied. I have shot individuals in hill districts with longer and more woolly fur, and more bushy tails than is usual amongst those found at lower

elevations. The ground-colour of the fur is tawny yellow, often with a strong rufous tinge; the spots are black or dark brown, simple in form, and distributed over all the body except the throat; towards the end of the tail they form broken rings. Under parts and tail-tip white. A black stripe runs from the lower corner of the eye to the upper lip, but I have never seen one from the upper corner to the ear, as in some Indian specimens. The average length of the male is 7 feet over all, from tip to tip, the tail occupying about 2 feet 7 inches; shoulder height, 2 feet 8 inches to 10 inches; girth, 30 inches. Cheeta cubs are warm gray or grayish fawn, with only a few indistinct spots on the lower limbs; their fur is long and woolly. They are very easily tamed, and make charming pets. Cheetas are very silent animals. I have never heard them utter a sound when prowling; but, if alarmed at close quarters, they break away with hoarse grunts, and growl querulously when at bay. The cubs often make a peculiar whistling sound.

Cheetas are by no means so rare in South Africa as many writers would have us believe, and I have encountered many at different times. They are numerous in the Transvaal, amongst the foot-hills of the Drakensberg Mountains, and in the low country, particularly so between the Oliphants and Letaba Rivers. They range throughout parts of Cape Colony, Bechuanaland, Swaziland, and Gazaland, but I have not yet met them north of the Zambesi.¹ They are not strictly nocturnal, for I have seen them hunting at all hours of the day. On one occasion, when I had off-saddled in the low country at mid-day, a pair of them tried to stalk my own horse and that of my after-rider, but we awoke from our nap in time to prevent them from executing their plan. If they have killed, they will readily feast during the day. Their lairs are made amongst rocks or grass-jungle. They usually hunt in couples, but I have seen parties of four, five, and six. They prey upon antelopes, and, when near native villages, upon calves,

¹ They are found in other parts of Africa.—Ed.

sheep, and goats ; but I have never known them to eat carrion. The largest antelope I have seen killed is a bull koodoo ; they fairly stalk their game, up wind, coming in with a grand rush at the last, if the animal bolts. They invariably kill by strangulation, and though I have examined many such victims, I have never seen a double set of fang-wounds, showing that they very seldom relax the first grip of the throat till the animal is dead. They disembowel their prey in a dirty, clumsy style, quite unlike lions and leopards, usually eating some meaty portions of the entrails, but never burying them. The viscera are first eaten, then the nose, tongue, and ears, the whole head in fact being more or less lacerated and eaten. I think the cheeta must be, for a limited distance, at any rate, about the swiftest animal in the world, and many times, when well mounted and over good ground, have I failed even to force them into their best pace. I once saw what they can do in the way of running. When stalking some sable antelope near the Oliphants River, the boys drew my attention to a koodoo bull feeding across a creek, about 200 yards distant, and I was debating whether the koodoo in hand would not be better than the sable in the bush, when the former suddenly started, glanced behind it, then, laying its horns back, dashed through the creek towards us, with two creatures, which I thought were wild dogs, in pursuit. These ran but slowly at first, though the koodoo, knowing his danger, was flying at top speed. He looked to have had about 70 yards' start, and when the cheetas—for such his pursuers were—stretched themselves out he was about 120 yards ahead. But they now moved like lightning, running low with long easy strides, which quickly put them on the right flank of their victim, who swerved to the opposite side, but next instant the foremost cheeta's fangs were in his throat, and he came headlong to the ground in a cloud of dust. I believe both these cheetas were males, for I shot one, and the other, which I spared on account of the entertainment he had afforded me, appeared, if anything, the larger of the two. There is little sport in shooting these beautiful

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cats, for they seldom show much fight, and have but little power of defence. Any modified express rifle of .450 bore will account for them. They rarely come to a bait, but, if their kill is found, can be shot at it.

F. VAUGHAN KIRBY.

THE CIVETS

Family VIVERRIDÆ. Genus VIVERRA

The members of this extensive family, the majority of which are comparatively small animals, are near allies of the cats, but have, for the most part, longer heads and bodies, shorter limbs, and a larger number of cheek-teeth, among which the carnassials are usually of a less scissor-like type, the lower one having a grinding surface behind the blade. Scent-glands are very frequently developed. With the exception of the Malagasy fossa, the civets of the genus *Viverra* are the largest members of the family, and may be recognised by their digitigrade limbs, partially retractile claws, the long and loose fur, the presence of a black gorget on the throat, and generally of a crest of long hairs down the back. The only Ethiopian member of the genus is the African civet (*V. civetta*). There are, indeed, numerous other African representatives of the family belonging to distinct genera, but none of these can in any sense be entitled to rank as game worthy of the sportsman's notice.

THE AFRICAN CIVET (*Viverra civetta*)

This civet is a denizen of tropical Africa. It is but little known to sportsmen, who, to speak truly, scarcely look upon it as much worthier quarry than the lesser *Viverridæ*, which are classed together as vermin pure and simple. However, the civet, from its size, and some lingering

remains of its former importance as a scent-producer, may be thought to deserve a few lines.

The civet of Africa is about 50 inches in length, of which about 18 inches consists of tail. In colour it is of a brownish-gray, brokenly marked with dark streaks and blotches. The back is somewhat crested. The tail is darker than the rest of the body, and marked with rings, which become fainter towards the tip. This is a bush- and cover-loving species, which preys chiefly on feathered creatures, especially game birds, guinea-fowl, lizards, frogs, eggs, and small mammals. It will devour fruit and even roots. It is a dire foe to poultry, and possesses to the full the bloodthirsty propensities of the weasels and cats. The civet stands low on the leg, but is extremely active. It is of nocturnal habits and, unless trapped or hunted up and cornered by dogs, seldom seen by the average sportsman.

H. A. BRYDEN.

THE HYÆNAS

Family HYÆNIDÆ. *Genus* HYÆNA

Hyænas also belong to the same group of Carnivora as the cats and civets, from both of which they are readily distinguished by their ungainly external appearance and the form and structure of the skull and teeth. All the feet are four-toed and digitigrade, with the stout claws incapable of retraction. The tail is of moderate length and bushy, and the fur coarse, shaggy, and more or less distinctly marked either with spots or stripes. A hyæna's skull is easily recognised by the enormous vertical crest of bone on the hinder half of its upper surface, which affords adequate support for the powerful muscles of the jaws. The cheek-teeth in front of the carnassials are of a stout, conical form, adapted for bone-cracking, the carnassials themselves being very similar to those of the cats, and the upper

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one alone having a small molar behind it, or rather on its inner side, as in that family. All the three living species of hyæna, which may be classified as follows, are found in the African continent, to which two of these are restricted.

A. The lower carnassial tooth like that of the cats.

1. Spotted Hyæna (*H. crocuta*).

B. The lower carnassial, with an additional posterior heel.

2. Brown Hyæna (*H. brunnea*).

3. Striped Hyæna (*H. striata*).

SPOTTED HYÆNA (*Hyæna crocuta*)

Wolf or *Tijger Wolf* OF THE BOERS; *Impisi* OF THE ZULUS, SWAZIS, AND MATONGA; *Phiri* OF THE BECHUANAS; *Kwiri* OF THE BASUTO; *Fisi* OF THE MANGANJA AND OTHER LOWER ZAMBESI TRIBES; *Kuzupa* OF THE ALOMWE AND MAKUA TRIBES OF PORTUGUESE EAST AFRICA.

The spotted hyæna is a massive and powerful animal, the largest of the three living species. Its colour is ochreous yellow, darker in some individuals than others, with dark brown body-spots, widely separated, which are smaller and closer together on the upper limbs; the lower limbs are dark brown and the muzzle nearly black. Ears rather large and rounded; very thinly haired; tail short; four toes on each foot, which are armed with powerful non-retractile nails. The spoor may be instantly recognised by the impression of the nails—it is much larger than that of the hunting-dog. An average full-grown male measures 5 feet 9 or 10 inches *over all*, with a standing height of 2 feet 9 inches; but I have seen much larger beasts. The following are the dimensions of the largest I have recorded, shot in May 1896 in the Matamiri bush.

Naturalist's measurements. Nose to root of tail in a straight line.	Length of tail.	Extreme length over all.	Vertical standing height.	Girth behind the shoulder.	Length of skull.	Width of skull.	Weight of skull.
4 ft. 9½ in.	1 ft. 1 in.	6 ft. 3 in.	3 ft.	39½ in.	12¼ in.	7¼ in.	2 lbs. 8 oz.

The voice of this creature is extraordinary, and the sounds it produces are legion : there is the weird “who-oo!” commonly heard ; the snarling whine of baffled annoyance ; the hideous laughing cackle round a carcase, and the loud fierce growl when wounded, or when discovered in a trap. I have heard them also endeavour, not unsuccessfully, to imitate a lion, but the result was ludicrous. Their organs of scent and hearing are highly developed.

They are distributed throughout the whole of the South-East African “low country,” but were formerly common on the plateaux, at an elevation of 5000 feet.¹ They are nocturnal in their habits, leaving their lairs when the shades of evening close in, and retiring thereto at high dawn. They seldom leave beaten tracks, game, or foot-paths, and will travel to and fro along the same one night after night. Their lairs are made in a thorn thicket, under a steep bank, or in deep grassy hollows ; sometimes in holes in rocks. Very seldom they take to a burrow, but the female, when parturient, always retires to such a spot. Hyænas are gregarious, and troops of six or eight are common. I have seen nineteen together. I have never observed that these animals seize and kill wild game, though natives say they sometimes do ; at all events they kill goats, donkeys, and even cattle. I have myself lost several donkeys by them (they were all seized by the flank and disembowelled), and a cow of mine was attacked in a kraal and her udder torn off. I have seen native cattle similarly maimed. Usually, however, they confine their attention to wounded animals, or carcases which lions have secured ; in the latter case, as related in my lion article,

¹ This hyæna is still fairly common in the less settled regions all over South Africa.—Ed.

their greed often incurs summary punishment at the claws and teeth of the lions. It is no fable that hyænas watch the vultures and thus find the carcasses of animals, for I have seen them doing so, "sloping" along, gazing skyward, intent only upon the direction of their fellow-scavengers' flight. I shot a hyæna thus engaged, and, singularly enough, it proved to be one which had been wounded a fortnight previously at my camp, half its lower jaw being blown away with a 10-bore charge of buckshot; it was fat and apparently thriving, however, when killed. They eat every portion of a carcass, skin, flesh, and bones, and leave little for a lion if they find his kill when he is away. They crack almost any bone with their powerful jaws, and what they cannot thus dispose of, they bolt with a wry face and a gulp. This is the reason lions kill so frequently, and I think that in the rare cases where lions fail to revisit their kill, it is owing to the fact that hyænas have so frequently deprived them of it that they instinctively know how useless it is to return to the spot. At night hyænas approach a carcass very cautiously, for they are terrible cowards, and stand looking at it and walking round it for half an hour before they venture to seize, perhaps, a "length" of entrails, and rush off with it as far as possible, then work back on it, devouring it inch by inch, till eventually they become satisfied that no hidden danger threatens. When hungry—which must be often—they are very bold, and I have known native babies carried off from the huts. Adults also are sometimes seriously bitten, the cheek or the buttocks being usually seized and torn off. I have also known these brutes to enter a camp circle and chew off the *riems* (by which the oxen are fastened to the trek-touw at night); but perhaps the most impudent act I ever witnessed was that of one which chewed the *riems* from a *stel* (a set gun), so that the weapon fell and exploded, and the hyæna, when his little scare was over, returned and ate the bait that was tied on the muzzle. Other Europeans besides myself witnessed this extraordinary feat. Hyæna pups are usually born in March and April, and I believe the number in a

litter to be four ; personally I have only seen two. The young are said to be easily tamed. Sportsmen always regard hyænas as vermin, for they show no sport even when brought to bay. They are an inconceivable nuisance when one is placing baits for lions. The carcase must be put well up in a tree or the hyæna will jump at it till he drags it down. The big brute whose dimensions I have given above was carrying nearly the whole carcase of an impala ewe, having seized it over the loins, and, holding his head high, was making off through some long grass with it, when, believing it was a young lion (the light was bad, it being very early in the morning), I fired, and knocked it over. Then advancing very cautiously, as I still heard the animal struggling in the grass, and thought it might possibly charge, I soon discovered it was a hyæna, the finest of its kind I ever saw, and of so pale a yellow colour, that its resemblance in the long grass to a lion was most perfect. I never before saw a hyæna thus carrying a carcase.

F. VAUGHAN KIRBY.

IN SOMALILAND

SOMALI NAME, *Waraba*

This is the commonest hyæna in the Somali country, and is to be seen everywhere. The skin is yellow, thickly marked with brown spots, the hair is short, and there is a small ridge of hair on the neck and withers ; the tail is not bushy like that of the striped hyæna. Though half a dozen or more will collect round a kill, they are not gregarious, but go in ones or twos. Any number could be shot, but there is no sport in shooting them. If there is a kill you are sure to see them at it during the night. They generally appear at sunset, or shortly before, and I have often seen them in the daytime prowling round when an animal has been shot. They will attack and kill sheep in the daytime, and at night-time will slay cattle or donkeys. You cannot tie out any animal as a bait for lions without sitting

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over it yourself, for the spotted hyænas are certain to kill and devour it. Sitting over a tethered bullock, I have seen half a dozen hyænas collect around it. One will slowly walk up and bite at the flank. I used to pelt the hyænas with stones. They would slink off for a short time, but returned again and again. If you are sitting over a dead animal and a lion comes, the hyænas retire. One moonlight night I had a very good view of a lion chasing a hyæna off the kill. The lion had come up to within a short distance of the carcase and lain down in a bush ; three hyænas came on to the kill, when the lion rushed out and pursued them for some distance. Another night I had shot a lioness. Two hyænas came up, and before I knew what they were about, seized the dead lioness and dragged it away 20 yards. Hyænas often entered my zereba when they could get through the hedge, and one entered my tent and carried off a leather water-bottle that was standing at my bed-head. They are said to carry off children from the *karias*, as the Somali encampments are called, and they also seize hold of sleeping men and women, almost always by the face, tearing a large piece away. A peculiar circumstance about the spotted hyæna is that the external organs of the male and female are alike, so that it is impossible to tell the sex by external examination. Burton, in *First Footprints in Eastern Africa*, says that "the Somal declare the waraba to be a hermaphrodite, so the ancients supposed the hyæna to be of both sexes."

J. D. INVERARITY.

BROWN HYÆNA (*Hycæna brunnea*)

Strand Wolf (SHORE WOLF) OF THE BOERS

The strand wolf, as it is commonly known in South Africa, was formerly to be found ranging down to the very shores of Table Bay, where, as in other parts of the littoral, it was in the habit of devouring the remains of dead whales, fish, or any other carrion of the sea-coast. It

is still heard of here and there along the coast-line of Cape Colony and Namaqualand. In the interior it has, like its more formidable cousin the spotted hyæna, been shot and poisoned off by the farmers and natives until it may now be regarded as a scarce animal. In height the brown hyæna stands from 2 feet 4 inches to 2 feet 8 inches, while it measures in length about 5 feet 8 inches from nose to tip of tail. The general colour is grizzled brown, brindled on the sides and hips with faint broadish transverse bands of a deeper brown. The legs are strongly and distinctly barred with blackish or very dark brown markings. The tail, which measures from 12 to 14 inches, is dark brown. A collar of dirty yellowish white surrounds the throat and runs up the sides of the neck. The hair is long, coarse, and shaggy, except upon the head, ears and legs, where it is short and crisp. On the back and sides the hair will measure as much as 10 inches in length. There is, however, no spinal mane or crest, as with the spotted hyæna.

The strand wolf has much the same habits as its spotted congener. It is cunning, cowardly, and cruel, and when deprived of its natural carrion will attack sheep, goats, calves, and occasionally even larger animals. It is occasionally heard of north of the Orange River, in Bechuanaland and elsewhere, but is far less common than the spotted hyæna. Its lurking places are in mountains and thick bush, and its habits essentially nocturnal. North of the Zambesi the brown hyæna has been found as far as Angola on the west, and Kilimanjaro on the east of Africa.

H. A. BRYDEN.

THE STRIPED HYÆNA (*Hyæna striata*)SOMALI NAME, *Lidder*

This animal is identical with the Indian hyæna. It is comparatively rare in Somaliland; and is considered by the Somal as harmless, since it confines itself to carrion and does not attack living animals or mankind. The specimens I saw had very much longer hair than one sees on the



FIG. 54.—Head of Striped Hyæna shot in North Somali Protectorate. Photographed by Lord Delamere.

Indian hyæna. A female had hair quite 9 inches long and a fine bushy tail. It is a smaller animal than the spotted hyæna. I have seen both hyænas together at a kill. There is no sport in shooting either of these hyænas. I shot one of each only.

J. D. INVERARITY.

THE AARD-WOLF

Family PROTELEIDÆ. Genus PROTELES

The single representative of this genus (*P. cristatus*) may be compared to a small and rather thin striped hyæna, with proportionately longer ears, a more pointed muzzle, and remarkably weak teeth. It has also five, instead of four, front toes; and it is chiefly owing to this feature and the peculiar characters of the teeth that the animal is assigned to a family apart from the hyænas.

THE AARD-WOLF (*Proteles cristatus*)

Aard-Wolf (EARTH WOLF), SOMETIMES *Maanhaar Jackal*
(MANED JACKAL) OF THE BOERS

The aard-wolf stands from 18 to 20 inches in height and in general outward appearance is not unlike an under-sized striped hyæna. It has been compared to a leggy, high-shouldered fox, but its decisive slope from the withers to the quarters is characteristically hyæna-like. The coat is very handsome, and, as the animal lacks the extreme offensiveness of smell of the true hyænas, its skin is more sought after by some of the native tribes—notably the Bechuanas, who hunt and trap it systematically as they do the jackals, cats, leopards, and other fur-bearing animals. The general colour is yellowish-brown, striped with dark transverse bands running down the sides of the animal. The legs are slightly barred with the same dark markings. The coat is long and thick, and a mane of somewhat upstanding hair runs down the spine. The snout is sharp and somewhat fox-like, and the ears are long and pointed. The legs and feet are dark brown in front, grayish behind. The tail is thick and bushy. The animal lives much underground in burrows—several individuals occupying

one earth—and from this peculiarity it has, of course, acquired its Dutch name of “earth-wolf” or “ground-wolf.” Aard-wolves are comparatively inoffensive beasts, and although South African farmers will tell you that they do much damage to lambs and kids, their weak dentition is standing evidence to the contrary. Occasionally these animals may devour a piece of carrion, or even birds, lizards, and reptiles, but their principal dietary seems to consist of white ants, grubs, and other insectivorous food. They are slow in their paces and offer little or no defence when attacked, and are in consequence quickly run into by dogs and worried, or knocked on the head with a native club or knobkerrie. Their habits are nocturnal. The aard-wolf has been found in Somaliland and in West Africa as far north as Angola. In South Africa it is widely but sparingly distributed.

H. A. BRYDEN.

DOGS AND WOLVES

Family CANIDÆ. *Genus* CANIS

The members of the dog tribe are so easily recognised that a very brief summary of characters will suffice here. They all have long, pointed muzzles, digitigrade feet furnished with non-retractile claws, four hind and usually five front toes, and moderately long, well-haired tails, the size of the pointed ears varying considerably. Their teeth are of the general type of those of the civets, but in the African members of the group two more in number, the total being forty-two. The carnassials are of a much less decidedly scissor-like type than in either the cats or the hyænas, that of the lower jaw having a large tubercular portion behind the blade. Details in the structure of the hinder part of the skull distinguish the dogs widely from the members of the civet tribe.

The only African member of the typical genus *Canis* worthy to be classed among great game is the Abyssinian wolf (*C. simensis*).

THE ABYSSINIAN WOLF (*Canis simensis*)

This handsome wolf was discovered by Rüppell during his travels in Abyssinia in the first half of this century. It is described in his time—*circa* 1835—as being found in most of the various provinces of that country. Like the wolf of Europe and other parts of the world it seems to have hunted in packs, and to have preyed on domestic sheep and the smaller of the wild animals. It was, however, apparently never looked upon as dangerous to mankind.

Since Rüppell's time little has been heard of this wolf and scarcely any fresh or recent information is to be obtained concerning it. From its predatory habits it is probable that the Abyssinians, so soon as they began to acquire fire-arms, turned their attention to its destruction, and that in consequence it has become much scarcer than it used to be.

Rüppell acquired a specimen captured in the mountains of Semyen (Samen or Simen), which is now, I believe, still to be seen in the British Museum. This specimen is figured in Mr. St. George Mivart's monograph on the *Canide*, and from this excellent coloured plate a very good idea is to be gained of its shape, characteristics, and brilliant colouring. Mr. Mivart thus refers to this wolf: "A very distinct species, and has no special affinity to any of the numerous varieties of the common wolf."

In size the Abyssinian wolf is about on a par with "a large sheep-dog." The general colouring is a yellowish rufous brown—rich fox-colour—with white round the mouth, about the eyes, on the inner margins of the ears, upon the chest, the front of the fore-legs—below the wrists—and of the hind-legs below the knees, round the vent, beneath part of the tail, inside the thighs and on the hinder portion of the stomach. The upper part of the tail to about the middle is barred with dark markings, the dark terminal portion ending in a black tip. Those lower parts of the body

which are not white are considerably paler in colour than the upper portions. Many of the hairs on the sides of the body and haunches are blackish for a part of their length.

This is a fine, bright-coloured, somewhat foxy-looking wolf, with a handsome bushy tail. It is chiefly remarkable for the extreme length and slenderness of the snout; while, as regards dentition, the premolars are small and curiously far apart. The dentition is very well shown in a plate accompanying the late Dr. Gray's description, in the *Proceedings of Zoological Society*, 1868, p. 506.

It would be extremely interesting to know if this handsome wolf still survives in Abyssinia in any numbers. Modern travellers and sportsmen apparently make no mention of it. It is of course to be remembered that the interior of Abyssinia is still but little known and explored.

H. A. BRYDEN.

THE HUNTING-DOG

Genus LYCAON

The single representative of this genus (*L. pictus*) differs from the true dogs, wolves, and foxes by having only four toes on the front as well as on the hind feet, as well as by its peculiar blotchy coloration, which recalls to some extent that of the spotted hyæna. Indeed the whole appearance of the animal is more that of a hyæna than of an ordinary member of the dog family.

THE AFRICAN HUNTING-DOG (*Lycaon pictus*)

Wilde-Hond OF THE BOERS; *Inkentshane* OF THE ZULUS; '*Budaja* OF THE SWAZIS; *Matshabidi* OF THE BASUTO; *Lethalêrwa* OF THE BECHUANAS

This pest of the Colonial farmer and of the sportsman's Africa is a singular-looking beast, in general appearance much resembling the typical

Canidæ, and in many ways suggesting the *Hyænidæ*, but *solus* in genus and species. A glance at the long muscular legs, narrow body and deep chest, and the broad muzzle declares it a beast which hunts its prey down by scent, speed, and endurance. It has the same number of teeth as the wolf, but the skull is shorter, broader, and more hyænine. It has four toes armed with powerful nails on each foot. In colour it is most variable, and I have seen some singular patterns on its hide. The ears are large and rounded, and almost bare. Except on the neck and throat the hair is nowhere thick on the body, and the colour-patches—ochreous gray, yellow, black, and white—are unsymmetrically disposed. Muzzle always black, and in individuals whose predominating colours are black and ochreous gray a stripe of the former extends from it over the frontals and crown and down the neck, where it meets the dark pattern of the body. When yellow is the predominating colour, the muzzle alone is black and the colour patterns are dull and indistinct. The tail is bushy, yellow at the root, then deep gray, with an irregular black band about the middle, and the tip white. I have shot a specimen in Central Africa in which the tip was pale buff-coloured. The feet are usually more or less spotted. The odour which emanates from these animals is most offensive and very powerful, so much so, that long after they have left any spot, the fact that they have been there is immediately revealed to one's olfactory organs. The following are the dimensions of an exceptionally large dog I shot in 1896 in the Matamiri, and of an average-sized bitch :—

	Large ♂	Average ♀
Length in straight line from nose to root of tail	3 ft. 4 in.	...
Length of tail	1 ft. 2 in.	...
Extreme length over all (sportsman's measurement)	4 ft. 10 in.	3 ft. 10 in.
Perpendicular shoulder height	2 ft. 5 in.	2 ft.
Girth behind the shoulder	2 ft. 3 in.	1 ft. 11 in.

I am of opinion that in South-East Africa these animals attain their

largest size in the Matamiri bush, where the vast troops of impala supply them with abundance of food.

They are found throughout South-East Africa in suitable localities, but have been driven away from nearly all civilised, or partially civilised centres, except in the Cape Colony, where the enormous tracts of scrub-bush offer a secure haven of refuge. In the Portuguese "Provincia de Moçambique" I have not met with any, nor do I think they occur there; in fact, they are far less numerous throughout the regions north of the Zambesi than in those to the south.

They have three very distinct cries—a short bark when one comes suddenly upon them in the bush, or some strange object attracts their attention; a voluble chattering, frequently harshly guttural, made by a troop when excited, or after they have run down their prey; and a clear single call-note, beautifully musical, and often heard at sunrise when scattered members of a troop call to their comrades. They usually drink after sunrise, again at mid-day, and in the evening. At mid-day, when the "pack" has finished drinking, I have often seen them taking a sun-bath in the sand. They are both bold and inquisitive, and when disturbed, trot away in front of the intruder, frequently standing and barking at him. I have heard of a well-authenticated instance of a man on the tramp, carrying his swag, who was pursued by a pack of these dogs and forced to take refuge at a sportsman's waggon; they only gave way on being fired at. Under ordinary circumstances they would never venture to attack a human being. They are partly nocturnal in their habits, but usually doing their hunting in the evenings or early morning. However, I have heard them catching impala at midnight. The greatest animosity exists between domestic dogs and these bush-pirates, and the presence of the former seems to incite the latter to frantic rage. I have never seen a domestic dog able to cope single-handed with these powerful-jawed creatures. These hunting-dogs are terribly destructive, not only to domestic animals but also to game, far more so than

are lions or leopards. I have seen them sweep through a herd of goats, tearing and mangling the whole flock in an incredibly short space of time. They hunt in packs, two or three, or sometimes only one, doing the running ; these, being relieved at intervals by others from the following pack, at once fall back. I have actually witnessed these dogs pull down (though the words inaccurately describe what occurred) a big heavy waterbuck bull. They raced it out of the bush, and along an open river-bank towards my camp, whence I saw the chase capitally. When first sighted, three dogs were running in at intervals and snapping at the bull, the rest of the pack—eighteen or twenty—being fully 30 yards behind. Within 150 yards of the camp the bull turned into the long reeds towards the river, closely followed by the dogs, and I ran along the bank in hopes of witnessing a final struggle in the water. To my surprise, however, about 200 yards beyond, the bull came back up the bank (the dogs evidently having headed it from the water) running very groggily, and lathered in sweat. There were now three dogs on each flank, snapping furiously at frequent intervals ; and I distinctly heard the clash of their jaws now and then as they missed their spring. Suddenly the bull stood, wheeled round, lowered his head as if to strike, then fell exhausted amongst the fierce pack. Each barrel of my rifle accounted for a dog, and with some difficulty I drove the other brutes away, then killed the waterbuck with a merciful bullet. He was fearfully mangled, being completely emasculated (donkeys and cattle are usually thus attacked), while his entrails were protruding from either flank ; there were apparently no wounds elsewhere. I also nearly witnessed a koodoo bull similarly done to death. The dogs—twelve or fourteen in number—raced it within 100 yards of me, two biting on one flank, three on the other. Unfortunately I was unable to get up in time to see the bull actually fall, though I saw the dust of the scuffle, so I cannot say whether he was really pulled down or fell from exhaustion. These antelope, however,—waterbuck and koodoo—are not fighters like the sable, and the unique instance related

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by Mr. Selous¹ of a bull of the latter being tackled by a single hunting-dog is most interesting and curious.

I have taken pups from the breeding burrows (these are never excavated, though frequently enlarged, by the hunting-dogs) in March, at 4000 feet elevation, when they were a fortnight old, and in June, July, and September, at 1000 feet elevation, when from one month to two months old. This would point to March-May as their breeding season; but I am of opinion that they have no regular season. I have twice seen a litter of four, once of six, and once of eight; in the latter case the natives assured me that the hole was occupied by two bitches. The young can be partially tamed, but are always suspicious, and very apt to snap. I have kept several. One was a keen and successful hunter, and always went foraging on his own account, but would never consent to hunt with my dogs.

F. VAUGHAN KIRBY.

THE BEARS

Family URSIDÆ. *Genus* URSUS

From other Carnivora, the members of the bear tribe are broadly differentiated by their heavy and clumsy build, plantigrade feet, rudimentary tails, remarkably narrow muzzles, thick and generally shaggy fur, and, above all, by the peculiar characters of their skulls and teeth. The latter, forty-two in number, are remarkable for the slight development of the cutting power of the carnassial teeth, the whole series of hinder cheek-teeth having broad, tuberculated crowns, far better suited to the mastication of roots and fruits than to the mincing of flesh. Bears are totally absent from the greater part of Africa, their only representative on the continent being the still imperfectly known African brown bear (*U. arctus crowtheri*) of the Atlas, which is apparently only a more or less well-marked variety of the common brown bear of Europe.

¹ *A Hunter's Wanderings*, pp. 356 et seq.

THE AFRICAN BEAR (*Ursus arctus crowtheri*)

In the earlier decades of this century, when the French invasion of Algeria had led to the penetration by European travellers of the remoter parts of Algeria and Morocco, before, at the same time, the presence of Europeans in the country had led to the gradual extinction of big game, reports began to be heard here and there of the existence of a bear in the mountains of the Atlas range. Ordinarily, the source of the rumour was Arab information. Arab hunters repeatedly asserted the existence of a bear in the country, but as the Arab word for bear (ذئب = *debb*) is equally applied in parts of North Africa to the hyæna, it is possible that travellers who collected these stories were under a mistake when they attributed the term to mean the North African bear. But in 1841 a Mr. Crowther, on his way to India, appears to have stopped at Gibraltar and thence crossed over to Africa, stopping at Tetwan and other places in the north of Morocco. Here he seems to have actually seen a dead specimen, an adult female. From his experiences and the information he collected, the following is the description of this supposed North African bear, which has been called tentatively *Ursus arctus crowtheri*. Its size is a little inferior to that of the American black bear, but more robustly formed. The face is much shorter and broader, and both toes and claws are remarkably short for a bear, the claws, however, being very stout. The hair is black, or brownish-black, and shaggy, about 4 or 5 inches long; but on the under parts of an orange-rufous colour. The muzzle is black. The individual seen by Mr. Crowther was killed at the foot of the Tetwan mountains, about 25 miles from the Atlas range. It was considered, even in 1841, a very rare species in that part, and fed on roots, acorns, and fruits. It was said not to be able to climb with facility, and to be very distinct and different in appearance from any other bear. Mr. Crowther seems to have attempted to preserve the skin, but did not succeed in doing so. He resumed his journey to

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India, and there imparted his information to the late Mr. Edward Blyth, curator of the museum of the Royal Asiatic Society at Calcutta, who forthwith sent this information to the Zoological Society in London. The latter printed a note on the subject in its *Proceedings* for 1841. Since Mr. Crowther's time no more definite news has been received of this bear, though other travellers have reported statements of Arabs and Moors that such a creature exists in the mountains of Eastern Morocco and Western Algeria. In Algerian Arabic there are distinct names for both bear and hyæna. Bear is called Debb (دب), plural Debuba; whereas hyæna is called Deb'a (دبعا), plural Debu'a. In Tunis the name Debb is applied indifferently to bear or hyæna. It may be added that bones of bears are common in the caves of Gibraltar.

H. H. JOHNSTON.



FIG. 55.—Head of White Oryx.

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THE END

SUPPLEMENT TO GREAT AND SMALL GAME OF AFRICA

THE GIRAFFE TRIBE

Family—GIRAFFIDÆ. *Genus*—GIRAFFA.

NOT only has the discovery of the okapi added a most interesting animal to the list of African great game, but it has rendered necessary a modification of the characters of the giraffe family as given in the *Great and Small Game of Africa*. Moreover, important contributions have been made to our knowledge of the giraffes themselves since the publication of that work ; and it has therefore been considered advisable to issue the present supplement to the volume in question.

Both the giraffe and the okapi are long-legged and long-necked ruminants, standing considerably higher at the withers than at the rump, with long slender heads, and tapering short-haired tails. The skull is characterised by the general lightness of the bones, which are more or less swollen in the region of the forehead, and also by the great length and slenderness of the lower jaw, in which the front teeth are separated by a very long interval from those of the cheek series, or grinders. The latter are short-crowned and coated with a characteristically rugose enamel ; while the four pairs of front teeth in the lower jaw, which have likewise a similar rugose enamel, are much expanded and show certain structural

peculiarities by which they are distinguished from those of all other ruminants. Although the tongue of the okapi is unknown, the form of the lower jaw indicates that it must have been of the same long extensile type as in the giraffes. Whenever horns are present they differ essentially from both the true horns of the *Bovidae* and the antlers of the *Cervidae*, consisting of skin-covered pedicles of bone which in early life, at any rate, are separable from the bones of the skull itself. In both the existing types of the family there is only a single pair of hoofs to each foot, the small lateral hoofs of the deer being absent.

Giraffes, which form the typical representatives of the family, are characterised by the excessive length of the neck and limbs, the presence of a mane on the neck and of at least one pair of horns on the head, as well as by the peculiar blotched or netted type of coloration. The pair of horns constantly present are situated immediately above the eyes, and in advance of these there is frequently a single horn growing from the middle line of the forehead, while behind the former there is a small and rudimentary pair on the occipital region, thus making five in all. In the females the horns are smaller, and the median one is never strongly developed.

THE BLOTCHED GIRAFFE

(*Giraffa camelopardalis*)

When the text of *Great and Small Game of Africa* was written giraffes were divided into a Nubian, or northern, and a southern species, the one being called *G. camelopardalis* and the other *G. capensis*. And it was considered that while the former was distinguished by having three horns, a spotted face, and a reticulate type of coloration, the latter was characterised by its uniformly coloured face, the absence or slight development of the third horn, and the blotched coloration. Certain presumed local races of

the former were referred to, but, in spite of the letter from the publisher quoted on page 507, the Somali giraffe was considered inseparable from the northern form.

The *Great and Small Game of Africa* was published in 1899. In the latter part of the same year Mr. W. E. de Winton¹ separated the Somali giraffe as a distinct race of the northern species under the name of



Head of Northern Giraffe obtained in the Uganda Protectorate by Sir H. Johnston, and now in the British Museum. The development of the hindmost horns is very marked.

G. camelopardalis reticulata. Thus matters stood till 1901, when Sir Harry Johnston announced in *The Times* that he had obtained a new five-horned giraffe from the country lying east of Mount Elgon, in the north-eastern portion of the Uganda Protectorate; the head and neck of one of his specimens being figured in *The Graphic* of August 3rd in that year. In describing these specimens before the Zoological Society of London on November 19th, Mr. O. Thomas called attention to the fact that the

¹ *Annals and Magazine of Natural History*, series 7, vol. iv. pp. 211 and 212 (1899).

posterior pair of horns first noticed by Sir Harry Johnston occurred in all old male giraffes from the north and north-east of Africa. It was also stated these giraffes appeared identical with the true *G. camelopardalis*, and that the latter seemed to pass into the southern giraffe, although a complete gradation had not yet been observed. On the other hand, the Somali giraffe was regarded as a perfectly distinct species. This view seems to the writer the most reasonable one, even if a complete gradation does not occur, and he thinks it advisable to adopt the popular name of blotched giraffe for *Giraffa camelopardalis*. In this wide sense there will be at least two distinct races of the species, viz. —

- a. Northern blotched giraffe (*G. camelopardalis typica*).
- b. Southern " " (" " *capensis*).

These races may be partly connected by one form from Lake Iassa, German East Africa, described as *G. tippelskirchi*, and a second from Kilima Njaro named *G. schillingsi*, although both these appear more nearly allied to the southern than to the northern form. Whether it is worth while to regard either of them as races by themselves may for the present be left an open question.

As its name implies, the blotched giraffe is characterised by the coloration taking the form of large brown blotches (the centres of which may be nearly black in old bulls) on a fawn ground; the outer surface of the ears of the adult being white or whitish, and the legs below the knees and hocks fawn-coloured. In the young the ears are drab or fawn.

In the typical northern or Nubian race, as exemplified by Sir Harry Johnston's specimens (one of which is mounted in the Natural History Museum), the males show five distinct horns, the first of which forms a prominent compressed boss, and have the sides of the face fully spotted.

In the southern or Cape race, on the other hand (Plate XIV. Fig. 3), both the anterior horn and the small posterior horns are smaller, and the

sides of the face are uniformly coloured, while the dark blotches, in many cases at least, are smaller, and the light interspaces wider.

As already said, the East African forms described as *tippelskirchi* and *schillingsi* appear to be intermediate between the northern and southern races in these respects. Whether the giraffe from Nigeria described as *G. camelopardalis peralta* (see page 509) is really a native of the country where the type and only known example was obtained, and if so whether it indicates a valid race, may for the present remain undecided.

THE SOMALI GIRAFFE

(*Giraffa reticulata*)

The distinctness of this giraffe was first indicated by Mr. Rowland Ward in the letter to *The Field* of 24th February 1894, reproduced on page 507 of the work to which the present article is a supplement. His views, however, were not accepted at the time. The heads represented in Figs. 2 and 3 of Plate XIV. of *Great and Small Game of Africa* belong to this species. All the figures of giraffes in the text likewise represent the Somali species.

The Somali giraffe (for which the name netted giraffe would be appropriate, were it not that it has a double signification) may be described as a dull red-coloured animal with a coarse network of narrow white lines dividing the ground-colour into a number of large irregularly quadrangular and sharply defined patches. The head and upper part of the neck are, however, spotted, while the ears and the legs from the knees and hocks downwards are white. In old bulls the five horns are well developed, although the hinder pair are somewhat less conspicuous than in the northern race of the blotched species.

Apparently this type of coloration is specially adapted for rendering the

animal inconspicuous among bushes, as is beautifully shown in the figure on page 493 of the text. The blotched giraffe, on the other hand, apparently inhabits more open country.

The typical specimen of the Somali giraffe was obtained by Mr. A. Neumann a little eastward of the Loroghi Mountains, while Lord Delamere's examples were killed in the Boran Galla country, the Rendili district to the north of Gwaro Nyiro, and the neighbourhood of the General Mathews Chain.

THE OKAPI

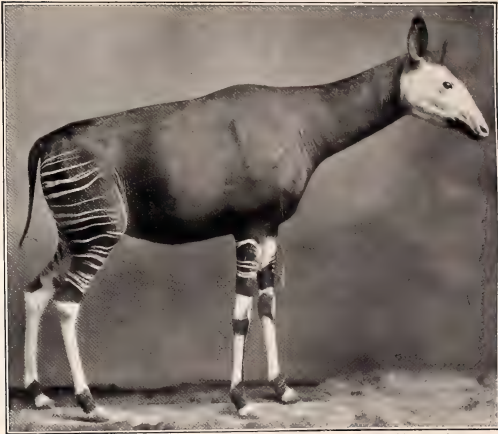
Genus—OCAPIA

As a genus the okapi (*Ocapia johnstoni*) is readily distinguished from the giraffes by its much shorter neck and limbs, its totally different type of coloration, and the absence of a mane on the neck, and (so far as is known) of horns on the head. It is in all respects a more primitive, or generalised type of animal than the giraffes, which it serves to connect with a number of extinct ruminants whose remains have been familiar to naturalists for years. In some of these, like the European *Samotherium* and the gigantic Indian *Sivatherium*, the males carried horns, but in the Grecian *Helladotherium* both sexes may have been hornless. The giraffe-like affinities of the okapi are fully established by the nature of its skull and teeth.

The one known skin of the okapi indicates an animal something over five feet high at the shoulder, but as this belonged to an immature individual, full-grown males must apparently be somewhat taller. The ears are much larger in proportion to the size of the head than in the giraffes; the head itself having a remarkably convex profile, and a narrow, rounded, somewhat downwardly-bent muzzle. The eyes are relatively smaller than in a giraffe, and the only traces of horns are small bumps in

the skin. Compared with that of a giraffe, which is remarkably vaulted and swollen above the eyes, the skull of the okapi is flat and depressed. The tapering smooth tail does not reach within some distance of the hocks.

Externally, perhaps, the most remarkable feature about the okapi is its



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The Immature Okapi in the Natural History Museum.

coloration, which is so strange and bizarre as to engender the belief in the minds of a large number of non-scientific persons that the creature must be a hybrid, with a zebra for one of its parents. The prevailing colour, which includes part of the forehead, ears, neck, and the whole of the body save a portion of the hind-quarters, is a purplish brown. The sides of the

face are puce, or fawn, the forehead and ears are reddish, and the muzzle is blackish ; while the lower part of the buttocks and the limbs as far down as the knees and hocks are transversely banded with black and white, the white bands being for the most part much narrower than the black. Below the knees and hocks the limbs are white, save for a black band round each fetlock and a black stripe down the front of the fore-legs.

Although the okapi (or o'api, as it is called by some of them) has doubtless been familiar for centuries to the tribes of the Congo Forest, nothing, save some vague rumours as to the existence there of a mule-like animal, was known of it in Europe till 1900. In that year, however, Sir Harry Johnston despatched to England certain strips of skin (now ascertained to have been cut from the hind-quarters) of an unknown animal. These, however, were quite insufficient to give any real clue as to the nature of the creature from which they were taken. In the following year the same gentleman sent home an entire skin and two skulls—both belonging to immature animals—obtained in the Semliki Forest between Lake Albert and Lake Albert Edward, on the border between the Congo Free State and the Uganda Protectorate. These sufficed to indicate to Sir Harry the affinities of the animal from which they were derived ; and the existence in Central Africa of a type of ruminant supposed to be entirely extinct was thus fully demonstrated. The discovery was as important as it was unexpected ; and the giraffe now occupies a much less isolated position in the animal kingdom of to-day than was previously supposed.

The skin, which was mounted at the establishment of the publisher, and from which the accompanying illustration is taken, is now exhibited in the Natural History Branch of the British Museum in the same case with specimens of the heads and skulls of giraffes.

No European appears hitherto to have seen a living okapi, and such accounts of its habits as we possess at present are derived from native sources. According to the information elicited from the forest dwarfs by

Sir Harry Johnston, the okapi generally goes about in pairs—male and female—and neither sex has horns. It inhabits only the most dense portions of the forest, and feeds chiefly by browsing upon leaves.

One curious problem connected with this animal awaits explanation, namely, the reason for its very peculiar type of coloration, which is almost certainly of a protective nature. The striping of zebras, as is well known, renders these animals practically invisible in the open at a comparatively short distance; and a similar explanation naturally suggests itself in the case of the striped limbs of the okapi. If we could imagine the creature living in such circumstances that its body was concealed among foliage while the limbs were exposed to view, such an explanation would fit the case. The darkness and gloom of the densest parts of the forest in which the okapi is said to dwell are, however, described as being so intense that protective resemblances of this nature would apparently be superfluous. Before a definite opinion can be given on these points it will be necessary for a competent observer to see the creature in its native haunts.

R. LYDEKKER.

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WARD'S REEDBUCK (*Cervicapra redunca wardi*)

SWAHILI NAME, *Tohe* ; MASAI, *Daragway* ; WANDEROBBO, *Erightiandet*

The reedbuck of East Africa, which for many years was mistaken by naturalists for the more northern form known as *bohor*, has, after careful



Ward's Reedbuck.

research, been separated by Mr. Oldfield Thomas, of the British Museum, and classed as a distinct sub-species under the above title, bestowed upon it in compliment to Mr. Rowland Ward, to whose aid Mr. Thomas was

Ward's Reedbuck

indebted for the clearing up of doubts and the settlement of a difficult question.

This reedbuck is closely allied to the nagor of West Africa (*Cervicapra redunca*). In colour it is of a pale rufous, the under parts white, the front of the face and of the forelegs being usually somewhat darker than the rest of the body-colouring. The average height at shoulder is about 28 inches. The horns measure in good average specimens 9 to 10 inches, the longest hitherto procured extending to $13\frac{1}{2}$ inches.

The habitat of this interesting species, which links as it were the east and west of the continent, is in East Africa, the type specimen having been procured by Mr. F. J. Jackson from the Mau Plateau. In the article contributed by Mr. Jackson to this volume many details concerning this antelope are given.

H. A. BRYDEN.

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Appendix to *Great and Small Game of Africa*. An Account of the Distribution, Habits, and Natural History of the Sporting Mammals, with Personal Hunting Experiences.

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